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Notes and Queries on Gas Lighting.

In the number for September 20th, of that exceedingly interesting and peculiar London periodical, *Notes and Queries*, there is a letter from a correspondent, "T. H. W.," of Richmond, Va., correcting Thos. Peckston, in his treatise on Gas Lighting; also Saml. Hughes, in his treatise on Gas Works, especially the latter, who has attributed to Dr. Watson, Bishop of Landaff, the discovery that coal gas retained its inflammability after passing through water. Peckston attributes to Rev. Dr. John Clayton the discovery of a permanently inflammable gas from pit coal, about 1691, but says nothing about his discovery of its inflammable property after passing through water; while Hughes, in his treatise, published in London in 1853, says, "To the celebrated Dr. Watson, we are indebted for the first notice of the important fact, that coal gas retains its inflammability after passing through water."

The Virginia correspondent of *Notes and Queries* states that Dr. Clayton had made a voyage to Virginia, and in a letter to the Royal Society, May 12th, 1688. after describing some severe thunder storms which he had witnessed in the Colonies, he says, "Durst I offer my weak reasons, I should here consider the nature of thunder, and compare it with some sulphurous spirits which I have drawn from coals, and that I could in no way condense, yet were inflammable, nay, *would burn after they passed through water*, and that, seemingly, fiercer. I have kept this spirit a considerable time in bladders, and yet if I let it forth and fired it with a match or candle, it would continue burning till all was spent."

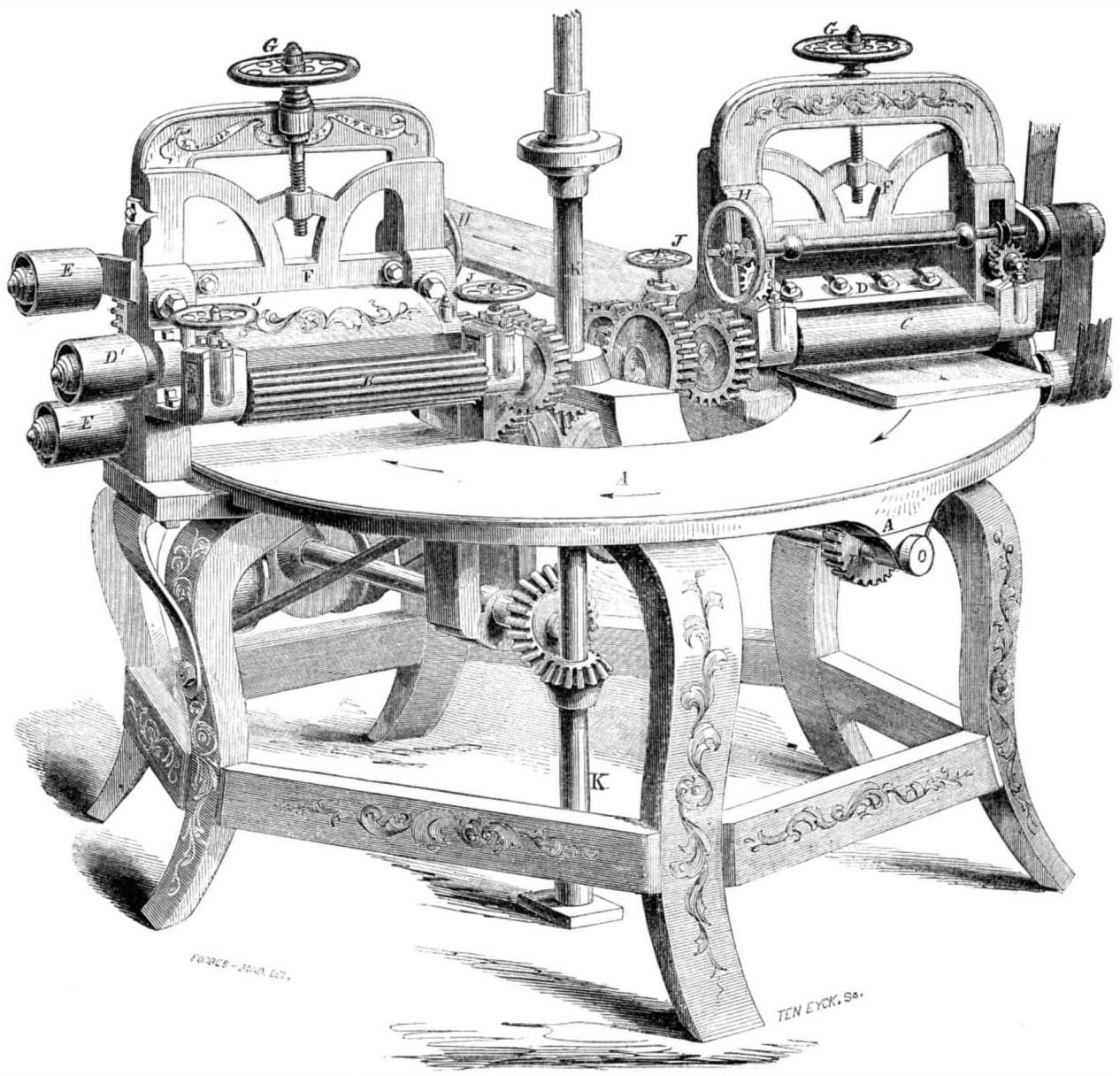
We are glad that an American correspondent corrected Mr. Hughes respecting who was the real author of this scientific discovery, and we understand that he has written to Richmond, thanking T. H. W. for the correction, and that he will make it in his next edition, giving Dr. Clayton full credit.

We have to remark that we are surprised Mr. Hughes should have given Bishop Watson any credit for such a discovery in a work published in 1853; while Parnell, in his work on gas illumination, published in London at least sixteen years ago, gives Dr. Clayton the full credit, and quotes the extract of his letter given above, from Virginia, on its first page. Mr. Hughes should have been better read in the history of gas lighting before he attempted to write upon it.

The Largest Flouring Mills in the World.

The Richmond (Va.) *Enquirer* says:—"We notice that the extensive addition which is now in course of erection, by Messrs. Warwick & Barksdale, to their already mammoth flouring mills in this city, is progressing finely. The foundation of this new edifice is stone, sixteen feet thick; the brick wall averages five feet in thickness from the foundation. The length of the building is one hundred and ninety feet, its breadth ninety-five feet. When completed it will be eleven stories high. The cost of the addition, with machinery, and everything necessary to its operation, will not fall far short of $200,000. These mills will constitute, collectively, the largest flouring establishment in the world.

NEW PLANING MACHINE.



Improved Planing Machine.

One of the prominent novelties at the great exhibition of the American Institute, Crystal Palace, N. Y., is the Planing Machine invented by C. H. Denison, Green River, Vt.

Our engraving is taken from the machine. Its operations attract crowds of spectators, who evince much satisfaction at the novel and rapid manner in which it does its work.

The machine is supported on an octogonal frame, surmounted by a circular revolving bed plate, A, of polished metal. The planing is done by means of two cutting apparatuses, both of similar construction, one on each side of the machine. Two boards are simultaneously planed. The boards are fed in and pass out on a tangent line to the circular bed, A. The feeding is done by means of the rotating bed plate A, acting in conjunction with feed rollers, B C. There are two of the latter upon each side of the machine, one being plain, the other fluted. Bed A and the feed rollers move in the same direction.

In nearly all other machines the feeding is done by means of feed rollers only, the bed being stationary. The stuff is pressed tightly down upon the bed, then drawn across its surface by the rollers. It is obvious that this method of feeding consumes much power, and is otherwise disadvantageous. A bed which presents a firm foundation for the stuff to rest upon while being cut, and which also moves in conjunction with the feed rollers, is a desideratum long sought for and often essayed; but the inventor of the present machine affirms that it has never, until now, been reached with practical success. From a careful examination of this invention, during operation, we are satisfied that the method adopted for feeding is a superior one.

D are the cutters, which consist of straight edges attached to a horizontal shaft. The cutters are adjusted at pleasure, and may be easily removed for grinding, etc. The cutter shafts are operated by belts passing over the pulleys, D. E E are accommodating pulleys, whose office is to keep the belt always in contact with D', during the adjustment of the cutter shafts.

The cutter shafts are mounted in sliding frames, F, which are raised or lowered to adjust the cutters to any thickness of stuff by the hand screws, G. Frames F are further tightened and secured in a given position by the hand wheels, H, whose shafts are provided with screws that gear with pinion nuts, I. The hight of the feed rollers is adjusted by the screws, J.

The feed rollers and the revolving table, A are all operated by the main shaft, K, with which the above parts are connected, by means of gearing, as shown. The under surface of bed A is furnished with a cogged rack, on which pinions, L, traverse, and give rotary motion to the bed.

This planing machine is simple, strong, and substantial in all its parts. The stuff is fed through with great ease and precision. Its work is done with a most excellent finish. Two boards, as stated, are planed at once. It is well adapted to the planing of ship's knees, curved and crooked stuff for chair and carriage maker's use, etc. Address the inventor as above, or Geo. Denison, 55 Cliff st., New York City, for further information. Patented Feb. 12th, 1856.

The Atlantic Telegraph Cable.

The London *Artizan* proposes that the new giant steamer *Great Eastern* be employed to lay the Atlantic telegraph cable between Ireland and Newfoundland. It could carry the whole cable and lay it down without trouble; and could not be employed in a better business on its first voyage.

Russian Steamships.

A correspondent of the *London Post* writing from St. Petersburgh states that a powerful company has been formed in that city, under government patronage, for the purposes of steam navigation on a grand scale. Twenty screw steamers of the largest class are to be built for it as soon as possible,—some in America, some in England, and a few in Russia.

Gold in North Carolina.

Since 1838 the gross produce of the gold mines of North Crrolina, as far as indicated by the Mint returns, is $4,233,336, and of Georgia, $5,685,864—total, $9,919,200 for the whole period.

German Silver for Castings.

Take lead, 3 oz., nickel, 20, zinc, 20, and copper 60, and fuse them together. The copper is first melted, then the nickel and lead added, and lastly the zinc, which is a volatile metal.

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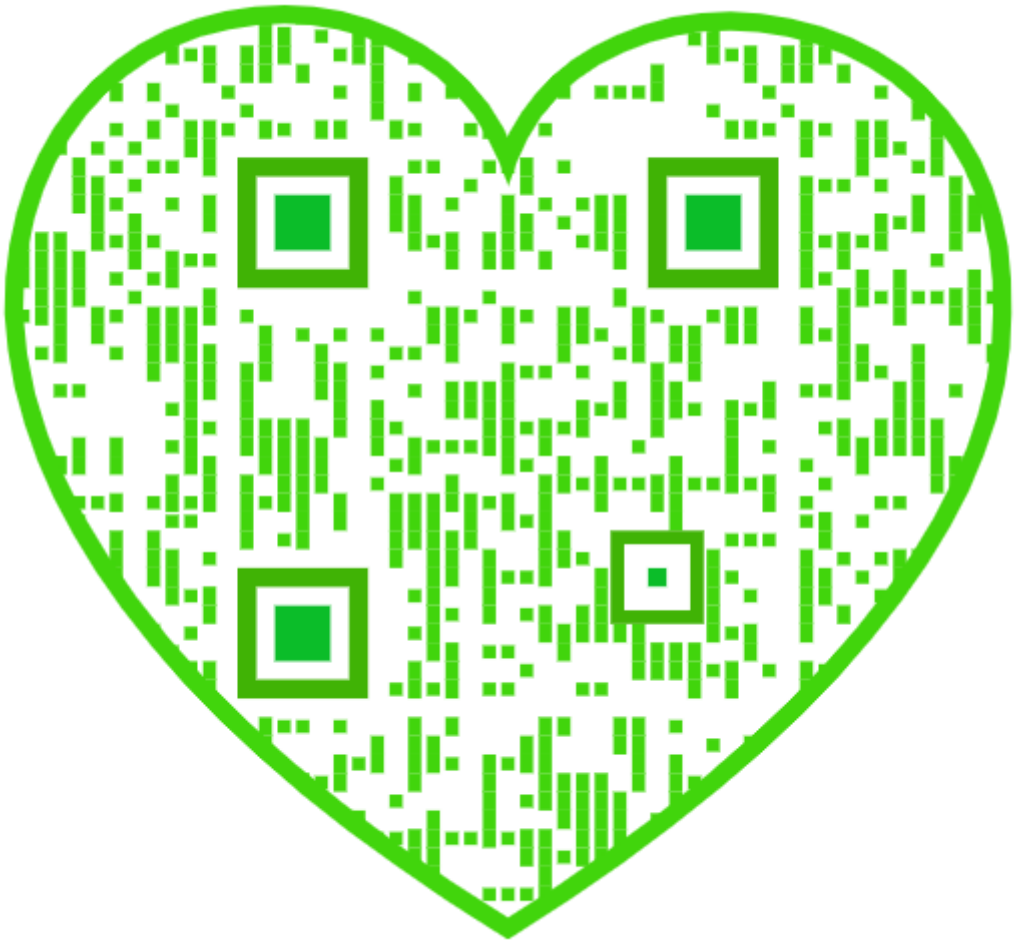

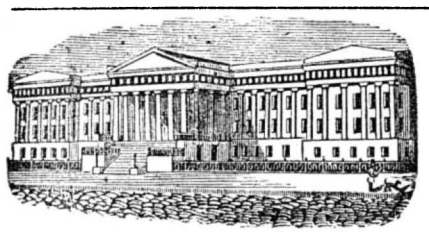

IMPORTANT NOTICE.

When an individual has made an invention, the first inquiry that naturally suggests itself is, *"Can I obtain a Patent?"* A *positive* answer to such questions is only to be had by presenting a formal application for a patent to the government, embracing a petition, and oath, specification, model, two drawings, and the payment of the official fees. Aside from these steps, all that the inventor can do is, to submit his plans to persons experienced in the business of obtaining patents, and solicit their opinions. If they are honorable men, he may confide to them his ideas with perfect safety, and they will inform him whether or not they regard his invention as patentable.

Those who wish to consult with ourselves on such matters, are at liberty so do so, either in person, at our office, or by correspondence through the mails. For such consultations we make *no charge*. We shall be happy, at all times, to examine inventions, and will give conscientious opinions as to their patentability.

Pen and ink sketches of the improvement, and a written description of the same, should be sent. Write plain; do not use pencil or pale ink, and be brief. Remember that all business committed to our care, and all consultations are kept by us secret and strictly confidential.

Parties wishing to apply for patents are informed that they can have the necessary drawings and documents promptly prepared at this office, on the most reasonable terms. It is not necessary for them to go to the expense of a journey in order to be personally present. All the required business can be just as well arranged by correspondence. Models may be sent by Express.

We have been engaged in the business of procuring patents for years, and have probably had more experience than any other firm in the country, owing to the fact that the amount of business done by us equals, if it does not exceed, that of all other professional patent agents in the United States combined. A large proportion of all the patents annually granted by the American government, are prepared and conducted by our firm.—We have in constant employment an able corps of examiners and draughtsmen, whose duties are so systematically arranged, under our own personal supervision, that every case committed to our care, receives the most careful study and attention, and the most prompt dispatch. In every instance we endeavor so to draw up the claims and prepare the whole case, that the patent, if granted, will stand the test of the courts, and be of value to the owner. Patents secured through our agency are scattered all over the country, and in this respect they speak for themselves.

In addition to the advantages which the long experience, great success, promptness and moderate charges of our firm, in obtaining patents, present to inventors, they are informed that all inventions patented through our establishment, are noticed editorially, *at the proper time*, in the Scientific American, without charge. This we are enabled to do from the fact that, by preparing the case, we become familiar with its peculiarities. Our paper is read by not less than 75,000 persons every week, and has a wide-spread and substantial influence.

Inventors, we believe, will generally promote their own interests by confiding their patent business to our care.

Address MUNN & CO.,
128 Fulton street, New York.

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 21, 1856.

Thrashing and Separating Machines—John Barnes, of Mount Morris, N. Y.: I do not claim as new a thrashing cylinder. B, and revolving screen, C, in transverse relationship to each other, when the said cylinder occupies a central position across the mouth of the screen, as such has been used; neither do I claim the introduction of a blast into the mouth of the screen, to assist the separation, and urge the straw down through the screen, irrespective of the lateral and relative arrangement of the blast described.

But I claim the arrangement in its transverse relationship to the screen, C, and across the mouth thereof, of the thrashing cylinder, B, on the falling side of the screen, when in motion, or mainly on said side, in combination with the introduction of the blast (by branch, d,) on the rising side of said screen, and between said side and the inner end of the cylinder s throw or action, for the better clearance of the grain from under the cope, and the more easy and effectual separation of the grain as it rises and falls, and is kept free and loose by the lift of the screen, as described.

Cotton Seed Planters—Chas. R. Belt, of Washington, D. C.: I claim effecting the seed discharge by the opposite reciprocation of the inclined plates, a a', constituting the bottom of the hopper, in combination with the armed rollers or their equivalent, arranged and operating substantially as and for the purposes set forth.

Cleaning Coulters of Plows—Edmund C. Bills, Jr., of Perry. N. Y.: I expressly disclaim smooth cones and cylinders, and those that are ribbed in direction of their elements, as coulter cleaners; I also disclaim the employment of mechanical devices for rotating such cleaners.

But I claim the employment upon the frontof a coulter of an inverted cone having spiral flanges thereon, self-acting by the upward pressure of the grass to free the coulter, substantially as set forth.

Corn Shellers—Wm. Black, of Allegheny City, Pa.: I claim two or more holes, g, of different sizes, with teeth A, converging in the manner shown, or any equivalent manner, for the purpose set forth.

Pumps—John P. Cowing, of Seneca Falls, N. Y.: I do not claim an oil or water chamber for keeping the pump cylinder air-tight, irrespective of the arrangement of the same; neither do I claim as new the air-chamber valves and water passages, for they are essentially the same as in many other pumps now in use.

But I claim the auxiliary cylinder placed on top of the pump cylinder, and so arranged as to form a reservoir for oil or water around the stuffing-box and piston, and at the same time to support a guide to the piston, which may be turned in any desired position.

[This is a valuable invention. The valves may be removed and repaired without difficulty, as they are, by the arrangement of the parts, rendered very accessible. The pump may also be placed in any position as occasion requires, without reference to the position of the crank which drives it. There are other improvements, such as the construction of the piston rods, oil or water cylinder, etc.]

Reed for Musical Instruments—J. C. Briggs, of Woodbury, Conn.: I claim the reed constructed substantially as described, of a ring or frame, A, with a vibrator, B, consisting of a disk or plate suspended by a central stem from a spring, to vibrate within the said ring or frame, in right lines perpendicular to the plane of the disk, thereby enabling a column of air of uniform thickness in all parts, to be admitted through the reed, and enabling an uniform vibration to be produced all around the reed.

[This reed is intended to be used principally for the subbass of melodeons and harmoniums, as it is capable of producing a deeper and more powerful tone than the common reed. It consists of a ring of wood, ivory, or metal, with a vibrator consisting of a thin disk of similar material, suspended by a central stem from a spring, to vibrate within the aforesaid ring, in right lines perpendicular to the plane of the disk. Between the ring and the vibrator, a column of air of uniform thickness or volume, in every part, is thus admitted, producing an uniform degree of vibration all round the reed. This gives a greater purity of tone than when the column of air varies in thickness or volume in different parts, and the vibration is greater or less, as in the common reed.]

Carriages—Daniel Freeman, of Burford, Canada: I am aware that the bodies of carriages have previously been supported upon springs arranged in pairs, both above and below the axles.

I am also aware that the draw brace arranged directly behind the point of draft, and connecting the swingletree with the body of the carriage is not new; I therefore do not claim broadly either the arrangement of the double springs, or of the draw brace.

But I claim the combination and arrangement of the body, supported by and distributing its weight upon all four springs, when placed above the axles as described; also the arrangement of the draw-bar and brace, by which the former is connected directly with the centre of the fore axle; also the arrangement of the fifth wheel or circle, H, upon the lower of the two front springs; also making the head-block, M, elastic—as set forth.

Photographic Pictures—Victor M. Griswold, of Lancaster, Ohio: I claim, for taking photographic pictures on paper or other substance, prepared by the described or other equivalent process, substantially the same and producing the desired effect.

Fire-Arm—Alex. Le Mat, of New Orleans, La.: I claim, first, the substitution of a shot barrel to the solid cylinder or pin, upon which the revolving cartridge cylinder of revolvers, constructed upon Colt's or similar systems of revolve, in the manner and for the purposes as described.

Second, the gun-cock, No. 11, with a double hammer, a and b, constructed and operatingsubstantially as described and for the purposes specified.

Sickles for Harvesters—Pells Manny, of Waddams Grove, Ill.: I do not claim the employment of back cutting teeth on the cutter bar, and operating between the cutter and finger bars, and over the fingers—whether the same be formed by the extension of the front cutters, or be separately attached at their base ends to the cutter bar.

But I claim as an improvement in the cutting apparatus patented to Henry Green, March 21, 1854, the arrangement at the back of the cutter bar, C, and for reciprocating operation with it, of a back set of cutters or clearers e, between the finger and cutter bars, when said teeth, e, are shaped and arranged to cut laterally forwards alternately in opposite directions through or over the backs of the fingers, for joint action with the front cutter, or cutters, d, for the better clearance of the fingers and cutter bar race, essentially as set forth.

[The above consists in a peculiar construction of the fingers and sickle, whereby the sickle is allowed to work more freely, and is effectually prevented from becoming choked or clogged.]

Harvesters—Pells Manny, of Waddams Grove, Ill.: I claim the straining stirrup or brace bar, E, arranged diagonally beneath the frame, and fitted so as to secure the ready and effectual adjustment of the frame or finger bar portion thereof, as described.

[By the above invention the sickle is always kept in a horizontal position, and the finger bar is allowed to rise and fall so as to conform to the inequalities of the ground, and at the same time the finger-bar is prevented from being casually raised. The grain may also be readily raked from the platform, with the heads outward—no exertion being required on the part of the attendant, to turn the grain while raking it off.]

Spike Machine—C. A. McPhetridge, of St. Louis, Mo.: I claim the conducting arms, C C, as constructed, when operating in connection with the means employed for cutting, pointing, heading, and clearing, and the closing guide, E F, as described.

I also claim the use of the feed rollers P P, the ratchet wheel V, bar C, pinion K, pawl O, in connection with the wheels, D D, and the pin, 4, when constructed and operated in the manner and for the purpose set forth.

Sizing Hat Bodies—Joseph McCraken, of Brooklyn, N. Y.: I claim the use of the india rubber or other elastic perforated cylindrical roller for working or sizing hat bodies upon, when constructed in the manner, and operated in the mode substantially as set forth.

Cotton Gins—James B. Mell, of Riceboro', Ga.: Whether the arrangement of fan E, within the roller B, as described, be new and be my invention, I do not claim it in these letters patent; nor do I waive my right to it in another patent.

But I claim the arrangement of two or more sets of ginning rollers, in an arch of the radius of the cleaning cylinder, in combination with brushes so arranged as to keep the rollers clean, and the fan, F, for removing the cotton from them as fast as ginned, substantially as described.

Cotton Presses—W. F. & C. J. Prevost, of Selma, Ala.: We claim the so uniting of the follower nuts and levers, as that when the follower shall arrive at its highest point of elevation, it shall automatically swing out of the way of the filling box, to facilitate the placing of the cotton or other material therein, as set forth.

Screw Machine—John Moore, of Madison, Ind.: I do not claim the peculiar shape of that part of the body which is semi-circular; that is not new.

I do not claim the vibrating motion of the die-chuck—that is old. I do not claim the peculiar shape of the dies.

But I claim operating the cutters in the die-box, by means of the links, N, the internal and external plates, as described in connection with the bar, P, the arc, 2, the lever, T, and set bolts, W, in the manner and for the purpose set forth.

Ships Capstans—Chas. Perley, of New-York City: I do not claim a capstan with the barrel filled to rotate with, or be independent of, the handspike head, as this has been done; neither do I claim varying the power of the capstan, by means of gearing in itself, as worm pinions, gears, and a variety of means have been heretofore in use: but I am not aware that a wheel around the base of the capstan, has ever before been actuated by a movable pinion, receiving its motion from the handspike head, center shaft, and gearing in the base, thereby the power to revolve the capstan, is applied to the best advantage, and with the largest possible leverage against the rope or chain round the barrel of the capstan.

But I claim, first, retaining said pinion, m, in place, by the overhanging base of the capstan barrel, except at the notches, q, at which point said pinion, m, can be removed as specified.

Second, I claim constructing the oil receptacle and groove, 6, (that contains the sustaining balls,) higher at the outside than the inside, to cause said balls in their motion, to lubricate the journal, 5, substantially as specified.

Nail Plate Feeding—Perry A. Wilbur, of Newcastle, Pa. (Ante-dated Oct. 14, 1856): I claim giving to the tubular nail-plate feeder, its rising and falling, semi-rotating, and forward and backward movements, substantially in the manner and for the purpose set forth.

I also claim the lateral adjustability of the nail-plate feeder, to change the angle at which the nail-plate approaches or passes under the cutting-die, for the purpose of giving more or less head or point to the nail; whilst said feeder continues to receive its multiple motion, as set forth.

Preparing Clay for Alum Making—Henry D. Pochin, of Salford, Eng. Patented in England, Jan. 30, 1855: I claim the calcining of china, clay, or other aluminous minerals, with the carbonaceous substances, in the manner described by which the alumina is brought into a condition to be easily acted upon by strong sulphuric and other acids, without adding thereto any substance injurious to the quality of the resulting compound, and the use of aluminous cake, obtained in manner described, in manufacturing the aluminous mordaunts used by calico printers and dyers, and in various other processes used by dyers, and in preparation of white leather, in the process termed tawing, also in the manufacture of paper, as a substitute for alum and the ordinary sulphate of alumina, as well as for the purpose of deodorizing and disinfecting, decomposing animal or vegetable matters, and for the preparation of the ordinary sulphate of alumina and alums of commerce.

Cast-Iron Railroad Car Wheels—John M. Sigourney, of Watertown, N. Y.: I claim the formation of the hub of an iron wheel cast in one piece, in the manner described, viz., recessing the same by means of annular flanges bordering it inside, outside, or both in and outside, when combined with the single plate and braces, as set forth.

Scale for Instrumental Music—Abbey S Smith, of Rochester, N. Y.: I do not claim the use of letters to denote musical sounds.

But I claim an improvement of the established letter organization of the instrumental music scale, by originating and giving tangible form and shape to a character to be called and to denote sharp key A, and another flat key, A, and another sharp key, B, another flat key, B, another sharp key, C, and another flat key, C; and the same of flat and sharp keys D, E, F and G, for which characters I claim different specific forms or shapes of each of the seven adopted musical letters, and different from the adopted shape of the adopted letters—all of which I arrange with other musical characters, upon the staff—so that all retain their value, capacity and position, in perfect conformity to the organic law thereof; and the different keys, in their definite capacity, are in form brought to sight, to be read at a glance of the eye, by teacher and learner, as described and set forth, or in any way substantially the same.

Head Rests for Chairs—C. A. Mills, of Dubuque, Iowa: I claim the semi-revolvable and vertically adjustable supporting rod, C, said adjustment being effected by means of the spring, a, with its fork, f, working into the notches of said support or its equivalent.

Balance and Fastener for Window Sash—Walter Worthen, of Danville, N. H.: I claim balancing and fastening window sash, both by one spring constructed, arranged and operated essentially in the manner and for the purposes set forth.

Filing and Setting Saws—H. R. Howlet (assignor to himself and A. W. Goodell,) of New York City: I claim the file frame, C, attached to the stock, A, in connection with the gauge, B, guide C, and lever G, with saw set, H, attached; the whole being arranged as shown and described for the purpose specified.

[By means of this implement any person unacquainted with the art, may file and set a saw in a proper manner. The file, and also the lever which gives the set, are so arranged that each tooth will be filed so as to have the proper rake: and also the desired set, the filing and setting being done at the same time, with the same implement.]

Splitting Mackerel—S. S. Turner, of Lewiston, Me., assignor to himself and Elner Townsend, of Boston, Mass.: I claim combining with the cutting knife, D, and the movable carriage, E, a set of centering and holding jaws, H I, or the mechanical equivalent therefor,

I also claim the improvement of making the knife move faster than the carriage, or, in other words, combining with the cutting knife and the carriage, a mechanism for rotating the cutting or splitting part of the knife at a greater velocity than the carriage may be moved, the same being not only to facilitate the splitting of the fish, but to cause the discharge of it from the carriage, as described.

I also claim combining with the holding carriage the centering jaws and the splitting knife, a mechanism for operating or opening the centering jaws to allow of the discharge of the fish by the action of the knife, as specified.

I also claim combining with the holding carriage, its centering jaws and the knife, a mechanism to open the said jaws during the backward movement of the carriage, the same being to prepare said jaws for the reception of a fish, substantially as set forth.

Lard Rendering Kettles—J. J. Bate, of Brooklyn, N. Y.: I claim the combination of the double steam kettle with the annular chamber, substantially in the manner and for the purposes set forth, and covering the exterior of said chamber with a non-conductor.

Combined Table and Bedsteads—Chas. Baum, of Philadelphia, Pa.: I am aware that combined seats and tables have been heretofore known and used, such as the sofa table of W. L. Bass, patented May 15th, 1854. I therefore do not make an exclusive claim to the combining of table and bedstead together for the use of artisans.

I claim the framework composed of the upright posts, A A', longitudinal bars, C C', transverse bars, D D', upper longitudinal bars, E and E, in combination with the board G, rods H H, and frame K, the whole being arranged and constructed substantially in the manner set forth.

Bending Wood—Thomas Blanchard, of Boston, Mass.: I do not now claim submitting the timber to compression upon its ends.

But I claim, first, subjecting the timber to pressure upon all sides, and continuing the same whilst it is being transferred from the straight trough to the curved mode, as set forth.

Second, the described machine for the purpose of bending timber, consisting essentially of the following elements or their equivalents in combination; 1st, the bending lever. 2nd, the device for compressing the timber while it is being bent. 3rd, the curved mold in which the pressure is continued, and in which the timber is removed from the machine after the bending operation is completed.

Washing Machines—A. A. Dailey, of Wilson, N. Y. I claim the combination of the fluted cylinder, B, and concave E, with the fluted cylinder I, substantially in the manner and for the purposes set forth.

Bottle Casters—Edward Gleason, of Dorchester, Mass.: I do not claim any of the devices separately considered; nor yet of itself a caster provided with doors to enclose the bottles, and opened to expose them by the turning of the center handle or rod of the caster.

But I claim, first, the arrangement of the bottles, F, centrally or thereabouts on or over the pivots of the niched or semi-cylindrical doors, D, when the latter are arranged for operation in relation to the body of the caster by the central rod or handle, as described.

Secondly, I also claim so gearing and connecting the revolving body, C, of the caster, with its separately turning doors D, and arranging the same with its stationary base, A, that upon continuing to turn the central rod, I, after the doors have been opened or closed, in the same direction which was required to open and close them, the whole body of the caster is made freely to turn on its base, A, with the doors in the condition they were set by said turning of the central rod, I, or handles, as set forth.

[This is a very useful as well as ornamental article for the table. The bottles are placed in niched doors which turn on pivots, the doors being connected by suitable gearing with the handle of the caster By turning the handle the doors are rotated on their pivots, and the bottles may be exposed on the outer side of the caster, or n closed within it, as desired.]

India Rubber Hose—J. H. Howell, of Ansonia, Ct.: I claim the described method of constructing india rubber hose; that is to say, by winding a fillet spirally upon a mandrel, and upon this winding a second which shall cover or break the line of joining of the first, the said fillets being made to adhere along their cut edges, as well as to each other, substantially as set forth.

Silvering Mirrors—Tony Petitjean, of Tottenham Court Road, Eng.: I claim the employment of tartaric acid with ammoniacal nitrate of silver, in any manner substantially as described for the silvering of glass.

[A full description of this invention will be found on page 403, Vol. 11, Sci. Am.]

Washing Machines—Jas. M. Kern, of Morgantown, Va.: I make no claim to the reciprocating pressure, as such.

But I claim the hollow slotted faced presser in combination with the cloth covering thereof arranged and operating substantially as described.

Rosin Soaps—Augustus Pfaltry, of Saxonville, Mass.: I do not claim rosin soap either alone or mixed with other kinds of soap. I do not claim rosin soap as ordinarily made, by using as much alkali as will dissolve the rosin; nor does my claim extend to any of the compounds of rosin and alkali, which attract moisture.

I claim the described mode of producing a solid soap from rosin, viz., by the use, as specified, of an excess of soda or carbonate of soda, so as to form alkaline salts, with the pinic and sylvic acids, which compounds are rendered nearly anhydrous.

Cooking Stoves—Samuel Pierce, of Troy, N. Y.: I claim the flanges or slats, x x x, for the purpose and in manner and form as described and set forth.

Also, I claim the method of constructing the ash pit and lower oven bottom plate in one piece with holes, y y y, for the passage of air, in manner and form as set forth, for the purpose of communicating a greater degree of caloric to the air in the air chamber surrounding the oven.

Also, I claim the employment of the dumb flue, M, lying within the upper fire flue, and forming a part of its lower plate, and communicating with the elevated oven by a passage opening into its bottom, substantially as set forth.

Coating Metals with Metals—Joseph Poleux, of New York City: I claim in the process of coating iron ware with metallic alloys, the employment of muriatic, nitric, or sulphuric acid of the ordinary degrees of concentration in commerce, viz., muriatic of 18 deg. Baume. nitric 38 deg., and sulphuric 66 degrees, without diluting them, embracing the solution of spelter in the cleansing acid, in the proportion and manner, and for the purposes specified; and the passing the cleansed articles directly into the metallic bath without any intermediate treatment whatever.

Capstans for Steam Boats—John Schaffer, of Manchester, Pa.: I claim the drum C, on the shaft of the capstan B, as arranged, the capstan, being steam driven by geared shafting connecting it with the 'little nigger,' and the whole being combined and made operative through the pulley, I, substantially in the manner and for the purposes described.

Seed Planters—J. H. Shireman, of East Berlin, Pa. I claim the slide, x, and clearers, n, in combination with the stirrer, w, constructed and operated substantially in the manner and for the purposes set forth.

Stove Blacking—Wm. Thomas, Jr., of Hingham, Mass.: I claim the described compound to be used for coating stoves and metallic surfaces, to impart to them a very durable polish, and to protect them more effectually from rust, as set forth.

[This stove polish contains black lead combined with manganese, asphaltum, and lampblack, mixed with a quick drying menstrum, and while it forms a brilliant polish, it is easily put on and brushed up, and is very durable. It is excellent for iron castings that have to be sent to a distance and exposed to the air and moisture, as it is very adhesive and a good protective against rust.]

Putting up Caustic Alkalies—George Thompson, of East Tarentum, Pa.: I claim the mode described, or its equivalent, of protecting small packages of caustic soda or potash from the action of the atmosphere, in the manner and for the purposes described.

Washing Machines—C. N. Tyler (assignor to Henry Pardin) of Washington, D. C. I claim, first, suspending the shaft, C, to the cross beam, E, in such manner as to be free to turn on its axis for the purpose of oscillating the disk to wash the clothes, and at the same time be capable of vibrating back and forth as the lever is raised or lowered, for the purpose of throwing the disk into or out of the tub, substantially as described.

Second, I claim the sliding disk, B, in combination with the slotted shaft, C, and adjustable spring, H, the whole being arranged and operated substantially as and for the purposes described.

Dyeing—J. P. Derby (assignor to the Salisbury Manufacturing Co.) of Amesbury, Mass.: I claim protecting certain portions of the fabric from the action of the dye, by a resinous compound, which may be applied cold, and afterwards removing the same by water, diluted alcohol, or the other means enumerated, substantially as set forth.

Shearing Sheep—J. V. Jenkins, of Jackson, Mich.: I claim operating the lever or plate, D, by means of the eccentric d, upon the shafte, said shaft being connected by a universal joint, g, to the compensating shaft formed of the tube E, and rod F, the rod being connected to the driving shaft G, by a universal joint h, as shown and described.

[This simple device will save much labor in shearing sheep. The implement is passed over the body of the animal, and the wool is cut off evenly by vibrating teeth operated by an eccentric. The implement may be moved in either direction by means of a ball and socket joint.]

RE-ISSUES.

Pianoforte Action—D. H. Shirley, of Boston, Mass. Dated Nov. 28, 1854: I claim the described manner in which the back catch, m, and the lifter, l, or its equivalent are combined together, and with the key lever, viz., by a lever, 1, hinged to the key lever and fastened to both back catch and lifter, the whole being substantially in manner as set forth.

DESIGNS.

Cook Stoves—N. S. Vedder and W. L. Sanderson of Troy, N. Y., assignors to G. W. Eddy, of Waterford N. Y.

Statuetts of Burton as Captain Cuttle—Chas. Muller, of New York City.

Erratum.—Buoys.

Wm. M. Ellis, of Washington, D. C., writes to us, stating that the word *moving*, in his claim, on page 42, in the Scientific American, 18th ult., should read *mooring*. It is difficult sometimes for us to discriminate between the right and wrong in the claims as written. When the error is palpable we can correct it, as we have done this week in the claim of Mr. John P. Derby, for the resist of resin in calico printing. The claim as written and sent to us says it is for *"projecting* certain portions of the fabric;" we have changed it to *protecting*—which is without doubt the true meaning.

Reform of Weights and Measures.

A correspondent—James Edi—writing to us from Verona, Wis., states that it is time Brother Jonathan roused himself up in earnest from his Rip Van Winkle sleep to devote his energies in reforming our systems of weights and measures. As the scientific world has nearly settled down upon the French system, he thinks it is the duty of the secretary of the Smithsonian Institute to urge its claims, in a report, upon our next Congress.

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About Plows and Husk Splitters.

MESSRS. EDITORS —On page 20, this volume of the SCIENTIFIC AMERICAN, an improvement in the common plow is called for. I should like to make a suggestion or two on that subject, for the consideration of some of your agricultural societies that are, as I perceive, wide awake to the duty of keeping one eye on the look-out for improvements, whilst the other is prying into the bad habits of careless husbandry.

In the fat black soils of the rolling prairies and the oak-openings in this part of the country, a cast-iron plow of Nourse & Mason's most improved long slim wedge-shaped pattern—such a one as would delight the heart of an "Eastern" farmer,—is of no use at all. Our old farmers tell me that they might just as well put handles to a log of wood and drag that through the ground. Such a plow will not *scour* here; the soil will stick to it like pitch to a monkey's paw. Now, to meet the wants of our farmers, the plow makers here make their plows of common steel hardened, and of cast-steel hardened; and these last are the best, and will *scour* in localities where the others will not. But all this is not enough—the favorite shape of the "Eastern" plow is as much at fault about scouring as the cast-iron material.

To make even a hardened cast-steel plow scour (although its surface is ground and polished) the mold-board must be brought up more nearly to a right-angle with the bottom of the furrow, and the off-side be brought forward more nearly to a right angle with the line of the furrow, than is the case in the cast-iron plows before referred to. This makes a blunt-looking stubbed plow, and always calls forth the exclamation from the "Eastern" farmer, at first sight, "it must draw hard." I suppose it will draw harder than the cast-iron in a gravelly or sandy soil, but here comes the point for the consideration of the agriculturists, whether they have not been using a bad-shaped plow, by pressing down their subsoil harder and harder, year after year, with this long slim wedge, for the sake of saving some of the labor of their cattle. The blunt, stubbed, hard-drawing Western plow scarcely presses upon the bottom of the furrow at all; at all events, nothing like as much as the cast-iron plow referred to.

One of your correspondents wanted a hand husk-splitter for Southern plantations; I can easily furnish him with such an article that would not cost more in the manufacture than some of the straw cutters in common use. The husk business is carried on quite extensively here. WM. D. ARNOLD.

Beloit, Wis.

Silvering and Gilding Metals.

MESSRS. EDITORS—I observed in your paper of Sept. 20th, page, 16, an article headed "Silvering Metal," patented by Adville, of Paris. I have discovered a process much more simple than his, and the articles to be silvered need not be freed of grease nor immersed in the liquid. This process I have given to several, among whom some are readers of the SCIENTIFIC AMERICAN, who will recognize it. I will state also that I have used it more than 18 months—long before Adville patented his process.

I will give my mode of making and using the silvering solution for the benefit of those of your readers who may be interested in such things :—

Take 32 grains of lunar caustic (nitrate of silver) and dissolve it in 4 oz., by measure, of rain water, add to this 128 grains of cyanuret of potash, shake for a few minutes, and it is ready for use. Apply this solution to the polished brass or copper, using a soft cloth, with prepared chalk.

This is a simple and quick way of preparing the cyanuret of silver in solution. It is very poisonous, and should be labeled *Poison*. If there is a sore on the hand or on a finger it should be protected before using this, otherwise there is danger.

It can be applied to many purposes, and is useful in polishing spoons, forks, and candlesticks, and, indeed, anything made of silver when it is necessary to clean them up.

The process of gilding is easy enough, but the articles have to be cleaned and immersed. Dissolve gold filings, or in small pieces, in nitro-muriatic acid—made of one part of nitric acid and two parts of muriatic acid—with a gentle heat, and a strong solution of cyanuret of potash in water, till the acid is neutralized and an excess of the cyanuret solution added. It is better to throw in, also, a little carbonate of potash. The article to be gilded is put into this solution and clamped with a strip of sheet zinc. The zinc is cut into a strip four or five inches long and half an inch wide, and the ends bent together so as to hold the article, which should occasionally be taken out and polished. The gold solution should be kept in a dark place. B. F. REA.

Lafayette, Ala., Oct. 1856.

The New Old System of Tanning.

MESSRS. EDITORS—By the last steamer I received No. 67 of *Le Genie Industriel*, in which I find a long and flaming account of a new and wonderful invention in the tanning business, just made by Mr. Charles Knoderer, of Strasburg. The French and German journals are full of bombastic articles on the subject, and a large joint-stock company has been organized in Strasburg to carry out the wonderful invention, which consists in enclosing in large wooden cylinders the skins of various animals—tan liquor and ground bark; the cylinders are filled completely full, and closed by a man-hole, and are then revolved, and every few hours the liquors are changed, and in a few days the skins are found to be as well tanned as in the old way in as many weeks. The cylinders are of such size that when loaded they will contain of skins, bark, and tan liquor 10 to 20,000 lbs. in weight.

As long ago as 1846 the very same system was in practical operation in the Brooklyn Tannery of Mr. Jonathan Trotter. The cylinders were fully as large, mounted the same way, and to the smallest particular the whole French process is a repetition of the Brooklyn process. Mr. Knoderer will have to try again.

If the thing was put forward in a modest way it might be passed over without notice, but Knoderer has a book out, filled with such "high falutin," pompous language that I find it necessary to clip his wings. It may be a new thing in Strasburg, but it is certainly an old affair in New York and Brooklyn.

Harlem, N. Y., Oct., 1856. J. T. T.

Dark Days.

MESSRS. EDITORS—That most delightful of all seasons, Indian summer, is upon us. The weather has been dry and pleasant, with constant sunshine, and a temperature of the atmosphere just warm enough, while the forests present a variety of colors most pleasing to the eye; but the great distinguishing feature of the scene, and that which marks it as Indian summer, is that the atmosphere is filled with smoke. Now I wish to ask where this smoke comes from. Some assert that it comes from the fires of clearings, others that the atmosphere gets so light that all the smoke settles to the ground. If Indian summer only occurred in New York City, that might do to talk about, but New York City could scarcely send up as much smoke in one day as is to be found covering two miles square around Dayton at this moment. Early this morning the smoke was not remarkably dense, but it has been thickening up all day, until daylight is almost shut out. When the sun shines everything has a bright yellow color, at least, I suppose it is the shining of the sun, for I do not know what else would cause it, but cannot be certain about it, for it is too dark for the sun to be seen.

You must not suppose that I mistake fog for smoke, for smoke produces a sensible effect upon both eyes and nose, and is readily distinguished from fog.

It is just half-past 2 o'clock, and is so dark that I can scarcely see to write while seated in a window of very large size. The room I am in is remarkably well lighted, and yet at this hour it is too dark to read ordinary print in the center of the room. The day is one that will be remembered as a very dark one.

G.

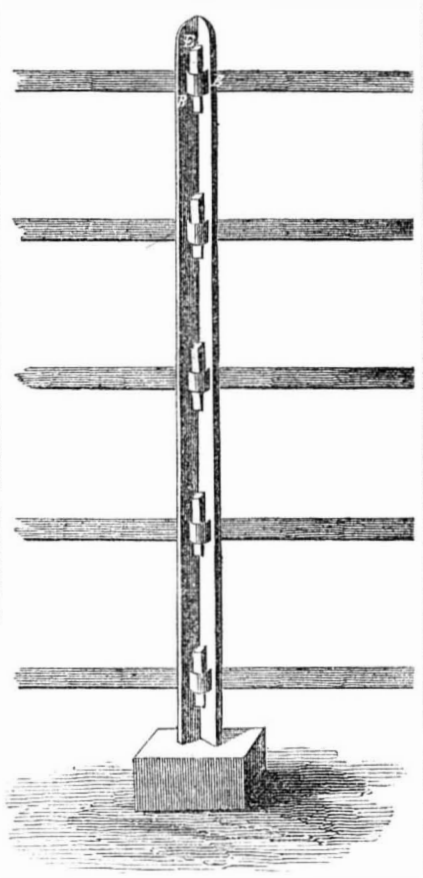
Dayton, Ohio, Oct. 13th, 1856.

The steamship *Perseverance* was burned at Galveston on the 3d inst.

Improved Construction of Iron Fences, Adapted to Farms, Railroads, &c.

The improvement relates to the mode of constructing a double-lipped post or tie, and also fastening, supporting, and taking up the slack of the rail, whether flat or round.

FIG. 1.



The post is bent or curved so as to form lips, B B. Each lip is mortised at various hights from the ground, corresponding to the position it is desired to fasten the rail. The rails are passed through the mortises, and a key, E, is then inserted, which fastens the rail to the tie. When it is desired to tighten or take up the slack of these flat rails, the key, E, is driven downward, and as it is made wedge-shaped and bears upon the corners of the posts as a fulcrum, it crimps the rail, and thus shortens it, and takes up the slack. At the same time it is held firmly, and the whole fence rendered very substantial.

FIG. 2.

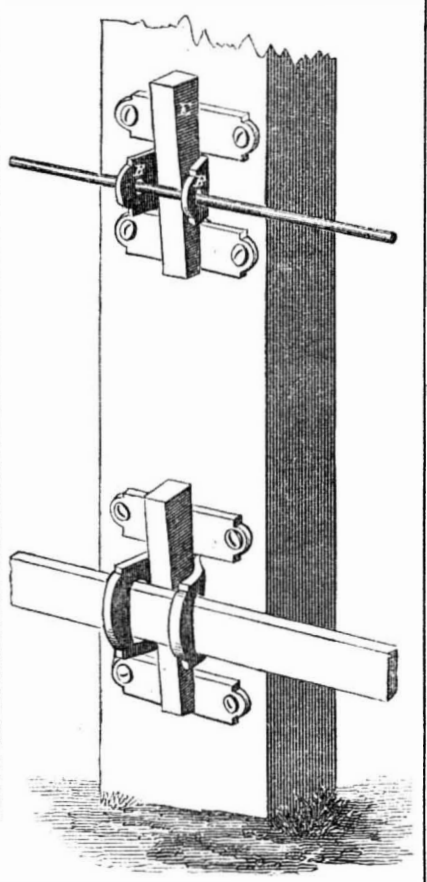


Fig. 2 shows a method of fastening, on the above principle, applied to common wooden posts, the lip parts, E, being screwed to the posts.

Flat iron for fences is a decided improvement over the common wire used for fencing purposes. The objection to invisibility is entirely removed by the use of flat rails, as the broad side of the rail is exposed to view, so that cattle or stock easily perceive it, and thus avoid damage to the fence, as well as themselves.

The flat rails being placed edge up in the posts prevents the rails from sagging, as in the wire fence. The posts can be manufactured of very thin iron into the U-shape, thus making them strong, light, durable, and cheap. The rails can be manufactured of light hoop iron for farm enclosures, and where heavier fences are required, the size of the rail can be of any desired width.

The chief novelty consists in the manner of securing the posts and the rails together, and in taking up the *slack* in wire fences, or in the flat rail fence where it occurs, and holding all the parts rigidly and permanently together. For further information address J. B. Wickersham, 312 Broadway, New York. Patented Sept. 16th, 1856.

Trial of Fire Engines.

A correspondent at Lowell, Mass., sends us an account of a trial of fire engines, which came off in the city of spindles on the 2nd and 3rd of this month. Three prizes were played for: the first, for $300, was won by the *Washington* engine, No. 3, of Medford, Mass., built by Hunneman, of Boston; the second, of $200, was won by the *Tiger*, No. 1, of Haverhill, Mass., built by Jeffers, of Pawtucket, R. I.; the third, of $100, was won by the *Eureka*, No. 1, of West Cambridge, Mass., built by Howard & Davies. Twenty-four machines entered the lists for the prizes.

The prizes were granted for the greatest total length thrown—the horizontal and perpendicular streams added together. The *Washington* threw a total length of 335 feet.

These trials of skill do not prove which engine is the best; they are not conducted to test this point,—they are simply feats of working,—more indebted for success to the ability of the firemen working the brakes than to the superiority of the machines. That machine is the best which, by a given number of strokes, in a given time, by the same power expended, discharges the greatest amount of water.

Steam Plows.

The Charlestown, Mass., *Advertiser* has been sent to us marked, in order to call our attention to an article in it, describing a steam plow stated to have been invented in the month of February last, by George Rumrell, an American gentleman who has resided for some years in Peru, and who made a contract with Messrs. Hettinger and Cook, of that place, to construct it. It is a locomotive or traction steam plow, designed for ten horse power, with two cylinders of five inch bore, each, and twenty inch stroke. It is intended to run six plows in a gang and turn over six furrows, measuring four feet wide altogether. It is to be steered so as to turn in a very small space, and is well adapted for the light soil of Peru, where it is to be used. The object of it is the plowing of sugar cane fields, which are very level, and the bagasse, or dry sugar cane stalks, are to be used as fuel. It will weigh four tuns, carrying its own water.

We hope it will prove very successful; but the *Advertiser* is in error in stating that it is the first of its kind invented—that is, a locomotive to draw its plow after it. There have been two kinds of steam plows constructed and tried in England,—one having a stationary engine, fixed at one part of the field to be plowed, and dragging the plows through the soil by ropes passing over pulleys; the other being a locomotive, driving through the fields and dragging its plows.

Our opinion is most favorable to a locomotive traction plow; no other kind is suitable for agricultural purposes. A number of very successful experiments were made in England last month, at Chelmsford, at Hownslow, and Hanworth, with Boydell's steam locomotive plow, against horses, plowing in the same field, and the *London Engineer* states that the cost for steam plowing is not over one-fifth that of horses. If this is so, then a great revolution in plowing is at hand; and our farmers on the Western prairies, may indulge hopes of having their wishes soon realized, and an efficient prairie steam plow provided for them.

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New Inventions.

Important Patent Cases.

Batten's Coal Breaker.—In the United States Circuit Court at Philadelphia, Judge Grier presiding, some very important cases were decided on the 21st ult. The parties were Batten agt. aggart and others, for infringement of his patent on the machinery for breaking coal, which was illustrated on page 17, Vol. 6, SCIENTIFIC AMERICAN. The trial occupied several days, and the case was keenly contested. The Jury gave a verdict for the plaintiff on all the issues.

There were in all seven cases tried together —three actions at law, and four equity suits. The questions of fact were the same in all the cases; that is, an alleged infringement of Batten's Coal Breaker, re-issued patent of September, 1849. Upon the question of damages in the suits at law tried by the Jury, in which the plaintiff claimed two cents per tun as a license for the use of his patent, the Jury made the following assessment for the time claimed:—Against James Taggart, $63·94; against Ratcliffe & Johnson, $52·17; and against John G. Hughes, $295·88.

Improved Turning Lathe.

Our engraving is taken from the operating lathe, invented by P. C. Cambridge, Jr., and exhibited at the great Fair of the American Institute, Crystal Palace, New York.

This invention is intended for the turning of all kinds of round ornamental work, such as bedstead, tepoi, null work, balusters, etc. It is chiefly remarkable for its simplicity, ease of adjusting the tools, and excellent finish of its work.

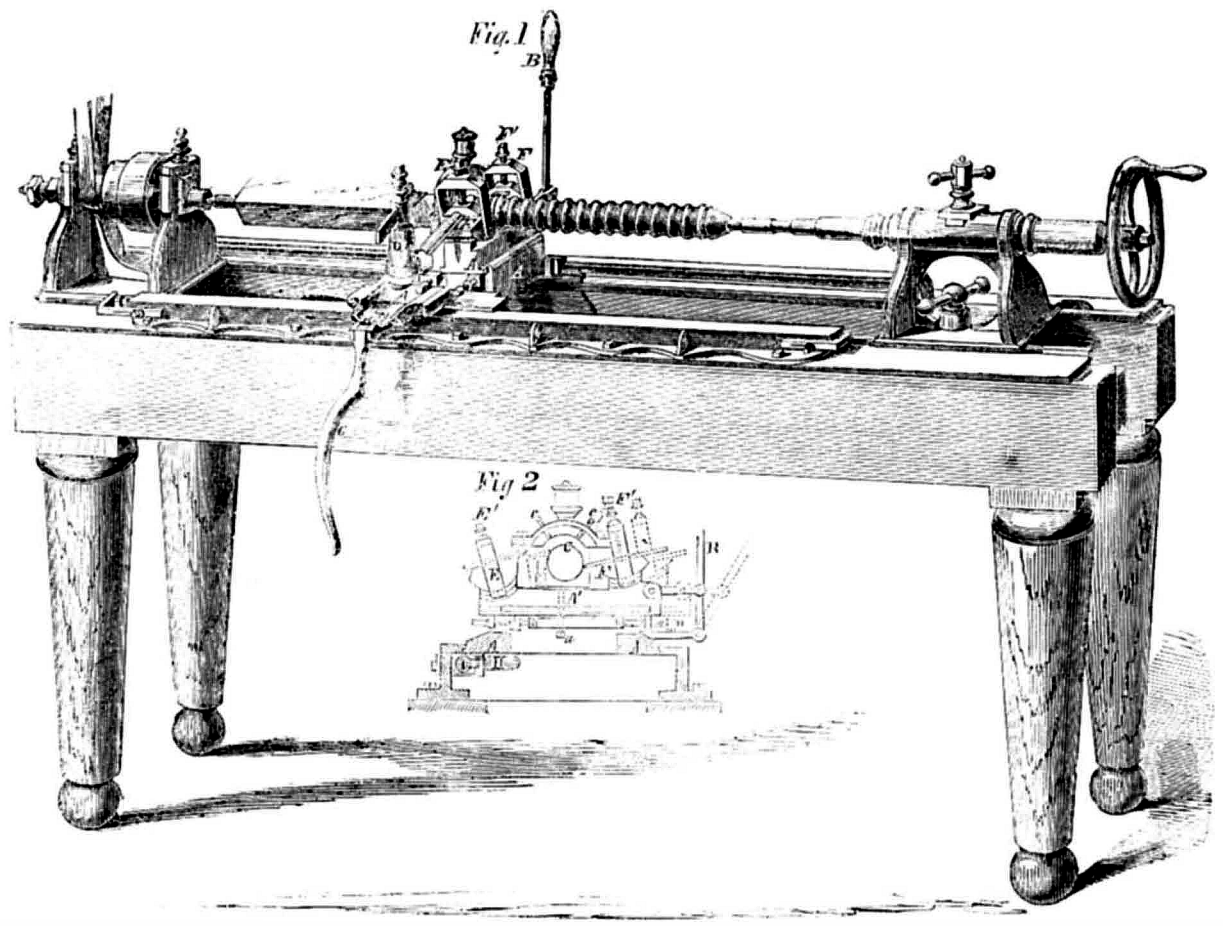
The stuff to be turned is centered, and caused to revolve in the usual manner. The cutting tools are all attached to a rest, A A′, which is divided into two parts, the lower portion, A, moving lengthwise on the frame, in the usual manner. The upper portion, A′, moves cross-wise upon A, or at right angles to the frame. The cutting tools are carried upon A′, and they are moved in and out, and caused to act upon the wood by means of lever B, which connects with A′. C is a round adjustable mandrel, which supports the stuff at the point where the cutters act. The collar is adjusted by screws, *a*, *c c*. The roughing is done by tool D. The ornamental turning is done by tools E and F. The shape of these tools must correspond to the design which is to be produced in the wood. For different patterns different shaped tools are therefore necessary.

The tool holders of E F are of peculiar formation. Their lower portions are of convex shape, resting in concave beds somewhat like a ball and socket joint. This permits the setting of the tool at any desired position, with the utmost convenience, accuracy, and rapidity. The tool is secured after being set in a given position by screws E′ F′.

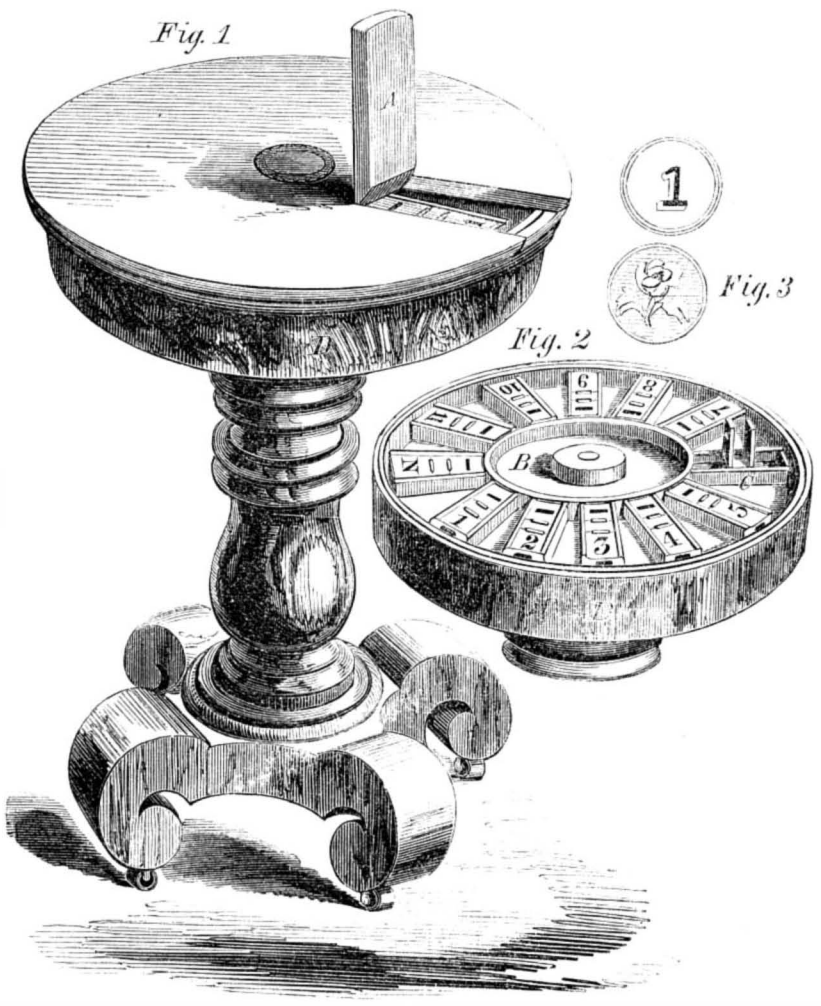
The longitudinal movement of the rest and its tools is effected, by means of the lever G, which is hinged to rest A. The operator places the lever G against the side of his body, and pushes, at the proper moment, in the direction of the arrow, thus moving the rest A for a distance, corresponding to the width of the tools; the rest is then fastened, and lever B pushed, so as to move A′, and bring the tools against the stuff. Rest A is now released and again advanced by means of G, as described. In this manner, step by step, the turning is accomplished. The alternate release and fastening of rest A, is done by the spring ratchet H, which meshes in a long rack, I. Said rack is eight sided, with teeth upon each side; in other words, there are eight racks combined in one piece, the teeth of each being arranged at different distances, in order to suit different kinds of work. When the operator wishes to move the rest A, he presses the spring ratchet, H, and releases it from the rack, I. In fig. 2, which is a sectional view, the situation of the spring ratchet and rack, and other parts, may be seen.

This lathe is very simple in all its parts, and therefore not expensive in construction or liable to get out order. It is very easily operated, works rapidly, and gives a smoothness of finish to its work that we have never seen excelled by any lathe. From a careful examination of the invention we are satisfied that it is a valuable improvement. Price from $75 to $150, according to size. For further information address the inventor at North Enfield, N. H. Patented July 15, 1856.

NEW LATHE FOR ORNAMENTAL TURNING.



NOVEL AURACULAR TABLE.



Novel Auracular Table.

Our engraving illustrates a new game for the amusement young people at social gatherings, parties, &c. A stand table is provided, in whose top there is an aperture covered by a hinged lid, A. Beneath the top is a revolving wheel, B, whose upper surface is furnished with a number of small oblong boxes, C, each of which is partitioned into two compartments, with a separate hinged lid for each division. The inner lids have slots in them, through which checks (fig. 3) can be slipped without lifting the lid. Each box is designated by a different number.

The game is as follows:—Those who participate select one of the numbered boxes as their own. Into the front or numbered end of each box, C, a few checks, like the specimens (fig. 3) are deposited. All the checks placed in one box are alike, but differ from those in the other boxes. The back compartment of the boxes are empty. By putting the hand under the table and touching the bottom part of wheel B it may be revolved. It is proper to state, here, that one of the principal objects and uses of the table and game is to enable a lady to signify to a gentleman her special preference for him, and *vice versa*, without speaking or permitting any other person to know that such signal has been given. In this respect the invention serves as a sort of ilent telegraph.

Suppose a lady wishes to signify to a gentleman that he is the object of her preference. She revolves wheel B until the box bearing her number appears at the aperture in the table top. She then opens her box, extracts a check, and turns the wheel until the box of her favorite appears, and drops the check through the slot into the back compartment; she also opens the front compartment, and extracts one of his checks, which she keeps. None of the company are to see what boxes she has opened. When all have played in this manner the table top is removed and each compares the check found in his or her box with the one retained. If the lady finds in her box a check similar to the one which she extracted from the box of her favorite, she will know that he alone could have deposited the similar one, and therefore, that their preference is mutual. Should she find a different check, she will not know who was the depositor, and *vice versa*. The box marked N is a neutral box, into which those who prefer to make no selection, can play.

We are informed that this game is a source of much amusement in social circles where it has been introduced. It is, obviously, of considerable utility in a matrimonial point of view, as it enables the bashful swain to say "Barkis is willin'," without ever opening his lips. It also gives to the anxious young lady the rare privilege of promptly responding "Yes, sir-e-e" to his proposal, and of thus catching him on the spot.

Oracular wheels of this kind may be made of paper, or as articles of furniture, as shown, also in a great variety of forms. Patented May 20th, 1856. For further information address the inventor Wm. O. George, Richmond, Va.

SPLENDID PRIZES.—PAID IN CASH.

The Proprietors of the SCIENTIFIC AMERICAN will pay, in *Cash*, the following splendid Prizes for the largest Lists of Subscribers sent in between the present time and the first of January, 1857, to wit

For the largest List,	$200
For the 2nd largest List,	175
For the 3rd largest List,	150
For the 4th largest List,	125
For the 5th largest List,	100
For the 6th largest List,	75
For the 7th largest List,	50
For the 8th largest List,	40
For the 9th largest List,	30
For the 10th largest List,	25
For the 11th largest List,	20
For the 12th largest List,	10

Names can be sent in at different times and from different Post Offices. The cash will be paid to the order of the successful competitor, immediately after the 1st o January, 1857.

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Scientific American.

NEW YORK, NOVEMBER, 1, 1856.

New Cast-Steel Process.

R. A. Brooman, of London (Editor *Mechanics' Magazine*) has secured a patent as agent for a foreign inventor for what is called "a new method of manufacturing cast-steel."

The basis of the invention consists in the introduction into crucibles, along with the pieces of wrought or malleable iron, of certain chemicals in which cyanogen is contained. As for example, cyanide of potassium and ferrocyanide of potassium, are to be used in connection with some form of sal-ammoniac. The usual furnaces and melting pots suitable for melting blister steel may be employed. The malleable iron (which may be of any description, such as bar, serap, blooms, &c.,) is prepared by cutting or breaking it up into small pieces. In a 50-lbs. charge of iron in a crucible are introduced ten ounces of charcoal, six ounces of common table salt, half an ounce of brick dust or oxyd of manganese, one ounce of sal-ammoniac, and half an ounce of ferrocyanide of potassium. The pot is then to be covered and introduced into the furnace, and the contents thoroughly melted, the heat being maintained for the space of three hours or thereabouts. The mass is then to be poured off into iron molds in the ordinary way of pouring cast-steel, and with the usual care required for producing a solid ingot. This may then be rolled into sheets, or hammered and tilted into bars, after the common method. In this process the employment of table salt, manganese, or brick dust is for the formation of scoriæ upon the top of the melted mass, to keep out the air. The proportions of ingredients given may be varied, and some may be omitted altogether, or others substituted. The essentials are the sal-ammoniac, some substance affording cyanogen, and charcoal. Fine cast steel may be produced with ferrocyanide of potassium and charcoal, also with sal-ammoniac and charcoal. The hardness or brittleness as well as firmness of grain and degree of malleability may be varied by altering the proportions of the several ingredients, especially of the charcoal, sal-ammoniac, and cyanogen. No particular character or quality of iron is necessary. Steel, it is stated, can be produced by this process from common English iron equally as well as from the best Swedish.

There is only a mixture of common materials to convert iron into steel by this process, and yet there is considerable that is novel in the particular mode of applying them to produce the specific result. For example, the ferrocyanide of potassium (prussiate of potash) is now, and has been used for a long time to steel the surface of iron articles, by the process called *case-hardening*; but so far as we know, it has not before been employed in the crucibles to convert iron into steel. Then again, charcoal and manganese, and brick dust and salt, have been used, and are now employed mixed with scrap and broken iron in the crucible to convert it into steel; this is "Heath's process," and was a most valuable discovery when it was made. Cyanogen, which is stated to play *the* important office in this new process, is a compound of nitrogen and carbon; sal-ammoniac, which is also used, is a compound of nitrogen and hydrogen. We have no doubt but good steel can be manufactured by this new process, as the cyanogen materials employed have been proven by experience to produce the effect of *steeling* iron, even before cyanogen was known by name in chemistry, or its composition was discovered. That is, pieces of horn and scraps of leather were employed hundreds of years ago by blacksmiths, tool makers, and armorers, for case-hardening iron; and it was the cyanogen in these substances which produced the specific effect; but the cause was then unknown to those who operated with it.

The prussiate of potash is manufactured from hoofs, horns, and scraps of leather, and although it is now much employed as a substitute for these crude ingredients in case-hardening, there are many who still follow the old method, and continue to use scrap leather.

Illustrate your Inventions.

Last week we briefly alluded to the fact that nearly all the prominent novelties at the Crystal Palace, in the mechanical department, had been illustrated and described in our journal.

The same circumstance is observable at almost every public exhibition, whether of a mechanical or agricultural nature, wherever held.

The most successful and profitable patents, beyond all doubt, are those that have been illustrated in our paper. In reminding patentees of this fact, we would also inform them that we make no charge for publishing engravings of new inventions, so that if they fail to avail themselves of the privilege which others enjoy, it is their own fault. All we require is, that parties shall pay the cost of the cuts.

The SCIENTIFIC AMERICAN is probably read by 75,000 or 100,000 persons every week. It is the leading guide and authority in respect to inventions. Indeed, it is a sort of public record of them. Every inventor should put his discovery on record, even if it is only for his own satisfaction.

Sales of Patents.

Bishup's Sad Iron.—Patented May, 1856. G. W. Bishup, Brooklyn, N. Y., has sold one half of his Sad Iron patent, illustrated in the SCIENTIFIC AMERICAN, Vol. 12, No. 1, for the sum of thirty thousand dollars ($30,000.)

Vice's Windmill.—Patented Aug. 29, 1854. T. C Vice, of Rochester, N. Y., and W. D. Snow, of Chicago, Ill., half assignee, have sold the patent of the above windmill for the State of Indiana to James C. Rose, for the sum of $7,000. Also the State of Missouri to A. C. Pardee, for $10,000. We are informed that there are nearly fourteen grist mills driven by this windmill, now in course of erection in different parts of Illinois.

Spear's Weather Strip.—Patented April 22d, 1856. Mr. Alfred Spear, of Passaic, N. J., has sold the above patent for the State of Ohio for $3,500, and the State of Illinois for $2,500. All the doors and windows of the new Court House at Cincinnati, O., are furnished with the above invention. See engraving Vol. 11, page 96, SCIENTIFIC AMERICAN.

Stephens' Corn Sheller.—Patented April 22d, 1856. Richardson & Co., Chicago, Ill., report the sale of the above patent for Illinois, Iowa, and Missouri, for $3,000.

Griffiths & Shield's Horse Shoe Machine.—Patented Dec. 19th, 1854. Mr. Robert Griffiths, Philadelphia, Pa., informs us that he has sold the above patent to a joint-stock company in that city composed of practical wealthy, and energetic men, for the sum of sixty-five thousand dollars ($65,000).

Steers' Tanning Process and Apparatus.—Patented March 4, 1856.—Ellithorp & Co., of this city, report the sale of one-half of Abraham Steers' patent, as above, for a handsome sum.

In addition to the above we have names and reports of many other patent sales, but they do not come to us sufficiently authenticated to warrant their publication.

These reports are intended for the information of the public and for the encouragement of inventors. We want our men of genius and means, to understand that their minds and their money cannot be better employed, than in originating and developing new inventions.

All persons who make sales of patents, or who hear of such sales, are requested to report the facts to us with a view to publication. Give names and dates, so far as possible.

We have reports of some large sales of American inventions in Europe, but shall defer publishing them for the present, for certain reasons.

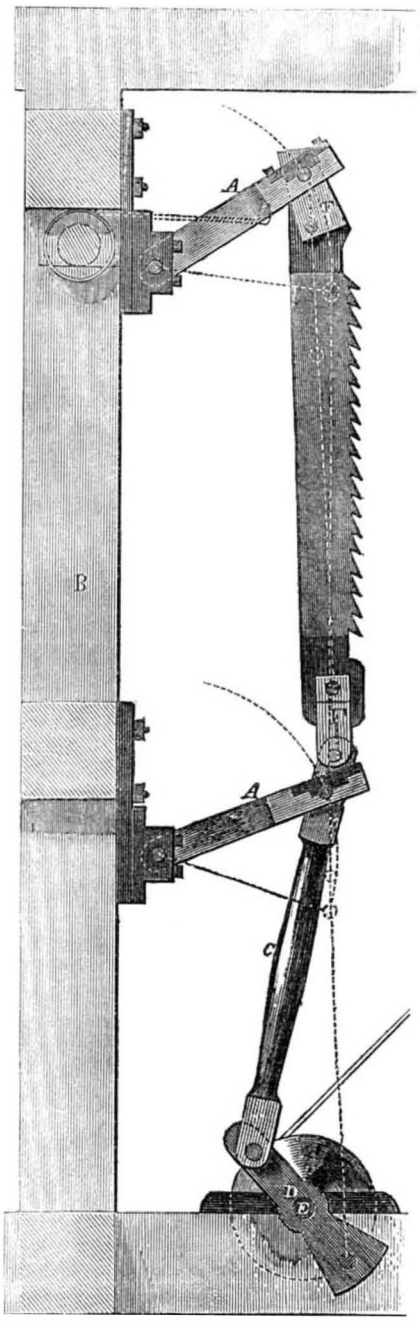
Resmelting.—Cast Iron Turnings.

It has been stated in some of our daily papers that iron turnings have been heretofore valueless, because of the impossibility to remelt them, but that Abiel Pevey, of Lowell, Mass., has invented a new method, and E. Lyon, of this city, another, to resmelt them, and thus render them useful. The method of the former is to place iron filings in hollow castings, and then resmelt them altogether; the plan of the latter—Mr. Lyons—is to make them into a compact mass, and smelt them in an open furnace surrounded with glowing fuel.

Such stuff is being continually set before the public by those who know nothing about the art of iron smelting. Why, excellent steel has been manufactured for a considerable period in this city from scrap iron, turnings, filings, &c. There is no difficulty experienced in smelting iron turnings and filings in a crucible.

New Method of Hanging Saws.

By John Robingson, of New Brighton, Beaver Co., Pa. In this improvement the saw is strained between the arms, A A, pivoted at their back ends to the frame B. The upper ends of the saw are furnished with jointed pendants, F F. Reciprocating motion is given to the saw by means of pitman, C, which connects with a crank, D, on shaft E.



As the shaft, E, is rotated, the two frames will have a vibratory motion, and the saw, in consequence of being connected to the frames as shown, viz., by means of the pendants, F, will have a rocking motion, the lower teeth of the saw cutting the log and then receding, the upper teeth acting successively in the same way, the last tooth that enters the log cutting last. By this arrangement the several teeth of the saw, as they perform their work, recede, and the saw dust is allowed to pass freely out of the kerf; the saw also requires but a small stroke, and will, it is said, cut a log 4 feet in diameter, with an eight inch crank equally as well as a log only half that diameter. The saw also may be operated with comparatively a small expenditure of power, and cuts rapidly. There is not much friction in the working of the saw, and but little lubricating material is requisite. The saw, in consequence of its short stroke, does not require to be long. In case of getting out of a vertical position, the saw may be readily plumbed, by having the bearings of the frames, A, and pendants, F, made adjustable. Patented May 20, 1856. Address the inventor, as above, for further information.

Great Exhibition of the American Institute at the Crystal Palace, New York.

SIXTH WEEK.

The interest manifested by the public to witness the Exhibition, has increased with each succeeding week since it was opened. During the past week, the visitors in the afternoons and evenings have been greater than on any former occasion. Some good machines and articles are entered every year too late to compete for prizes, but not too late to be seen and examined by thousands. This has been the case last week; we shall refer to some of these in our next number, in which shall also be published a list of the Prizes.

The Fair has been continued open for a week longer than was previously intended, to the great satisfaction of the public and exhibitors.

Portable Saw Mill.

R. Frazee, 114 West 15th street, New York, exhibits one of his patented portable saw mills, which appears to be exceedingly cheap and simple in its construction. Its whole weight, we are informed, is only one tun, and it is said to be capable of sawing any length or size of log. An upright saw is used. It can be readily put together or taken apart. Price $450 and upwards. Emerson & Co., manufacturers, No.1 Spruce street, New York City.

Woolen Shawls.

The Bay State Mills, Lawrence, Mass., and the Watervliet Mills, Troy, N. Y., exhibit a number of checked woolen ladies' shawls and gentlemen's plaids. Their quality is equal to any of those imported, and their colors as brilliant. One scarlet shawl, by the Bay State Mills, embroidered with silk, is as well executed as any embroidery we have seen on foreign crape shawls. There is one great defect which we have often witnessed in the arrangement of colors, both in our shawls and carpets, to which we wish to direct attention, namely, a want of care in blending the colors according to the law of intensity, as well as the law of contrast. Thus there are various shades of the same color; these embrace quantity and intensity, and should always be blended with other colors, according to their degree of tone. We have seen a feeble green contrasted with a deep red, whereas it should have been a deep or intense green.

Trial of Hand Fire Engines.

A trial of various hand fire engines took place at the Crystal Palace on the 23rd ult. They played horizontally through 600 feet of hose. Engine No. 3, of Brooklyn, L. I., threw a stream 167 feet in length—the furthest thrown. It was built by Wm. Jeffers, of Pawtucket, R. I., and has proved itself to be a superior machine. The stream thrown was from an inch and an eighth nozzle. It is a short stroke engine on low wheels, and is of the kind called *piano*. It is our opinion that this form of fire engine is the best for hand work, as the men can exert their power much better with a short than a long stroke. Thus a stroke of the arms, reaching from the chin to a few inches above the knee, is one during which a man can exert the greatest force throughout its range. That part of a long stroke taken above the hight of a man's chin, tends to strain the muscles. Every engine should be built with such a stroke as can be best executed by those who work it, and as the strength of a man can be best exerted on a short low stroke machine, of course it must be the best. It is true that the length of the lever is less, but by making the arms longer, and putting on more men, they can be worked as easily as a long stroke engine.

Sewing Silk.

H. M. Hemingway & Sons, of Watertown, Conn., exhibit two cases of sewing silk manufactured at their mills. All the samples do credit to the manufacturers. The uniformity of the twist. and the closeness of *lay* in the strands, afford evidence that good doubling and twisting machinery are employed in its manufacture. The colors and luster are equal to any silk thread we have examined.

Capstans.

J. R. Pratt, 62 Attorney st., N. Y., exhibits a number of Capstans, of different sizes,

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made under Holmes' patent. The common levers are not used, the power required being obtained by a pair of cranks, one on each side of the capstan. These cranks are adjustable. When a quick speed is wanted the cranks can be quickly shortened for that purpose, or if great power is required, they may be lengthened. See SCIENTIFIC AMERICAN, Vol. 11, page 257, for engraving and a more full description.

Talcott, and Son, of this city, exhibit some improved lever capstans. The barrels are made large, to prevent breakage of line, and the pawls are placed within, out of the reach of water and ice.

Hatter's Lathes.

L.W. Boynton of this city, exhibits an improved Hatter's Lathe containing several novel features. One of them consists in the introduction of a suction fan, which carries off the dust arising from the sandpapering of the hat body. This dust is very offensive, and highly injurious to the health of the operator. There is a lever for stopping the lathe, at pleasure, while the fan continues to revolve. The hat block is made in two parts, so that it may be extended or reduced, according to the ruling fashion. The making of a new block for each change of style is thus avoided.

Horse Hitch.

Edward Boynton, East Hartford, Conn., exhibits a novel spring clamp, to be applied to posts, for hitching horses. The end of the halter needs only to be passed into the clamp, and no other fastening is required. Press a spring and the halter is released.

Steam Sawing Machine.

Fairbanks, Wilmot & Co., 343 Broadway, N. Y., exhibit one of Wilmot's patent portable Steam Saws, for cutting down and then cutting up trees. The handle of the saw is made hollow, and contains a piston, to the front end of which the saw is attached. Steam is introduced, through a flexible pipe, to the handle, and the piston with its saw is thus caused to move back and forth with great rapidity. The apparatus is shown in operation, and can cut through a log of 20 inches in diameter with great speed.

Hydraulic Rock Drill.

J. Echols, Columbus, Ga., exhibits his newly patented drill for boring rocks. The central part of the drill passes through a small box, from the upper and lower sides of which a stream of water is allowed, alternately, to spirt. The water strikes into cups that are attached to the drill, and the latter is thus caused to rise and fall with great rapidity. The water is introduced to the drill through a flexible pipe. For an engraving and full description see SCIENTIFIC AMERICAN, Vol. 11, page 244.

Window and Door Lock.

Alfred Speer, of Passaic, N. J., exhibits an improved patent weather-strip and door lock, which is really a valuable invention. By simply turning a knob or button a tongue or strip is made to project from the casing into a corresponding groove in the window or door. A tight joint is thus made, which excludes rain and dust. The device also serves as a firm lock, and thus gives security. It is neat, durable, and so simple that it cannot get out of order. Price $2. See engraving and description in SCIENTIFIC AMERICAN, Vol. 11, page 96.

American Watches.

Dennison, Howard & Davis, of Waltham, Mass., exhibit several fine specimens of gold and silver watches made at their establishment. The finish and general appearance equal the best imported articles.

Cooking Without Fire.

E. D. Seeley, of this city, exhibits Albro's patent apparatus for cooking without fire: the required heat being generated by means of lime. The apparatus consists of a small tin boiler-looking contrivance, within which the meat, vegetables, bread, etc., are placed A small quantity of lime is placed in the bottom, in an apartment by itself. Cold water is now conveyed by a tube to the lime, and a strong chemical action instantly ensues. The result is that a heat sufficient for all ordinary cooking purposes is produced, which continues from half an hour to an hour. For an engraving and description of this novel contrivance see SCIENTIFIC AMERICAN, Vol. 11, page 281.

Carpet Sweeping Machine.

L. W. Boynton, of this city, exhibits an ingenious little contrivance for sweeping carpets, which is the delight of all the ladies. It consists of a small box in which there is a revolving brush that sweeps the carpet. There is also a revolving fan, that sucks up all the dust and dirt, and carries it into a small compartment containing water. The woolen fibers and larger particles are deposited in a drawer. The sweeping is done by pushing the box along over the surface of the carpet by handles. The whole apparatus is light and simple, and will outlast a thousand brooms. No dust is created, and the sweeping is most thoroughly done.

Stone Sawing Machines.

Avery's patent Stone Dressing Machine is exhibited by Lucius Thompson, of New Haven, Conn. The cutters are arranged upon the surface of a rotating disk. The stone is placed upon a carriage and fed up to the disk. The latter revolves vertically, being attached to the end of a horizontal shaft.

Starbuck Brothers, of Troy, N. Y., exhibit a new machine for dressing stone, which operates with great success. In this machine the cutting is done by means of a series of chisels arranged side by side in a line. The chisels are pushed down and caused to cut the stone by means of a series of projections attached to an endless belt. As the projections come around they hit the shanks of the chisels and drive them down. The chisel shanks and projections are beveled so as to graduate the blows. Only two chisels are struck at once, but such is the rapidity of movement that they all seem to act together. The points or cutting edges of the chisels are made of thin blades of steel, which are moveable at pleasure from their shanks. The method of grinding the cutters and the adjustment of the parts is simple and convenient.

Smoothing Irons Heated by Gas.

L.W. Boynton, of this city, exhibits a new device for heating smoothing or sad irons The common objection is, that in the combustion of gas, water is produced. Hydrogen from the gas unites with oxygen from the air and forms water. This collects on the bottom of the iron, and soon roughens its surface by corrosion. Mr. Boynton divides the bottom of the iron into two parts, which slip together. The lower part, or shell, is removed and heated by exposing its inside to the gas. The other part is now placed within the shell, and the iron is ready for use. In this manner the bottom is heated, but never exposed to the flame. The removal of the upper part always insures a cool handle. The iron presents the usual form and appearance.

Blowing Apparatus.

John Boynton, Jr., this city, exhibits a newly invented blowing apparatus, which is alleged to present a gain of 75 per cent. in power over common fan blowers. In other words, only one-fourth as much power is needed to drive this improvement, as the common fans require; or, with the same power, four times as much air can be delivered. The improvement is applicable to steam boilers, furnaces, and all kinds of machinery where a blast is wanted. The apparatus consists of two shafts, each having two arms that mesh together like cog wheels. These arms are encased in a circular box. The air enters at the periphery of the case, on one side, and is discharged, in the same manner, on the other side. The air is partly compressed and forced along by the said arms. The invention may be applied to pumping purposes, or used as a rotary steam engine.

Machine for Boring Pumps and Tubes.

A. Wykoff, of Elmira, N. Y., exhibits one of Wyckoff & Morrison's patent Tubular Boring Machines, for boring pumps and wooden tubes. It consists of a hollow tube or auger having cutters at its extreme end. Within the tube is a rod furnished with an auger-shaped screw. The cutters on the tube effect the boring, while the auger rod extracts the chips. The parts named move in different directions. The machine bores at the rate of ten feet per minute, and with an accuracy that is truly wonderful. We are preparing an engraving of the above machine, which will be published next week.

Planing Machines.

C. B. Morse, of Rhinebeck, N. Y., exhibits his patented planing machine provided, with a self-adjusting, unyielding knife bed which permits the planing of stuff of from three inches in thickness down to one-eighth of an inch. We are preparing an engraving of this invention, which will shortly appear.

Jones & Crowell, 208 Broadway, N. Y., exhibit a planing machine that operates with much success. It puts a good finish upon its work, planes thick or very thin stuff, is easily adjusted, etc. Price $500.

N. Barlow, exhibits one of his small-sized planing machines, celebrated everywhere for their simplicity and practical excellence.—Price $500. For a full description and engraving see SCIENTIFIC AMERICAN, Vol. 11, page 49.

Woodworth's Planing Machine, small size, is exhibited by the Fitchburg (Mass.) Foundry and Machine Co. It is a fine specimen of workmanship.

Denison's planing machine, an original invention, will be found illustrated on the front page of this number.

The above comprise all of the planing machines at the Palace. All of them use cutters attached to rotating horizontal shafts.

Ratchet Handle Boring Instruments.

G. H. Talbot, of Boston, Mass., exhibits several varieties of his newly patented ratchet handles, for gimlets, screw-drivers, augers, bit-stocks, cork-screws, etc. The arrangement is such that the handle of the auger or other instrument, may be turned back for a new stroke, without removing or changing the grasp of the hand. As applied to bit-stocks it permits them to be used in corners or narrow places where the common stock cannot be employed. In appearance and size these handles are about the same as the common kind. One handle may be used for different sized tools.

Gas Regulators.

Henry G. Beatley, of this city, exhibits *Hoard's Patent* Gas Regulators, which are alleged to produce a saving in the amount of gas consumed of from 25 to 50 per cent. This economy is said to be effected by a self-acting valve arrangement which causes the gas to escape with a uniform velocity at all times, no matter how unsteady the street pressure may be. Price $8 and upwards.

Kidder's Gas Regulator is exhibited by the New York Gas Regulator Company, No. 262 Broadway. The saving which this device is alleged to effect is surprising. One theatrical establishment in this city certified to a saving of $2000 by its use in one year. That it saves from 25 to 50 per cent. of gas, has been too often proved to be doubted. For engraving and description see SCIENTIFIC AMERICAN, Vol. 11, page 100.

Weighing Machines.

Strong & Ross, of Vergennes, Vt., exhibit a variety of specimens of their newly patented platform scales. Among others is a platform scale having a capacity of six tuns. A test burden of 2500 lbs., placed on a truck and rolled about from corner to corner, on the platform, scarcely indicated any variation in the beam, no matter in what position the weight rested. We were much pleased with the accuracy of the machine. These scales are constructed on scientific principles. No pit is required and small links, which always prevent accuracy, are also avoided. Price for scales of 6 tuns capacity, $150. For an engraving and description see SCIENTIFIC AMERICAN, Vol. 11, page 369.

The Vergennes Scale Co., E. A. Johnson, Agent, New York, exhibit several specimens of their scales, made under Sampson's patent. Among them is a railroad weighing machine, 40 feet in length. We witnessed a trial a few days since, during which a burden of about twenty tuns, placed on a railroad truck, was rolled from one end to the other. But little variation in the scale beam was observed when the position of the burden was changed. For engraving and a full description see SCIENTIFIC AMERICAN, Vol. XI., page 169.

Fairbanks & Co., of this city, exhibit a large variety of weighing apparatus from post office scales up to large platform machines.

D. M. Smyth, Herford, Pa., exhibits his new self-acting cotton scales. The peculiarity consists in connecting a weighted lever and an index, with the scale beam, in such a manner, that as soon as the bale is swung, a pointer indicates the exact weight, without assistance from the attendant.

The Parker Scales Co., of Meriden, Conn., exhibit some fine specimens of weighing apparatuses.

Sewing Machines.

Robinson & Roper exhibit their new improved sewing machines, which appear to operate with great success. Two needles are employed, the points of which are furnished with hooks that alternately catch the thread and form the stitch. The finest kind of cotton thread or silk can be used. The work appeared well done. Price $100.

The above parties also exhibit an ingenious machine for sewing eyelets, which, it is said, will sew from 1600 to 2000 eyelets per day, putting from 20 to 30 stitches into each. The machine is particularly useful for gaiters, corsets, etc. J. S. McCurdy, agent, 411 Broadway, N. Y.

Nicholas Leavitt & Co., exhibit their improved machines for sewing leather. Waxed threads are used, or not, as desired. For boot and shoe making, harness and carriage makers, the invention appears well adapted.—Agency as above.

L. W. Langdon, of this city, exhibits his newly patented knot stitch machine. A shuttle is used in combination with a needle, and a peculiar stitch formed, so knotted, it is alledged, that all ripping is prevented. It is claimed that this machine produces stronger and better work than many others. Price $75.

Wheeler & Wilson Manufacturing Co., of this city, exhibit a number of their machines, which appeared to be in great favor with spectators. They operate with great rapidity and do the very finest kinds of work with perfect success. Price $100.

I. W. Singer & Co., of this city, exhibit several varieties of machines, among which are some for sewing leather. Many elegant samples of machine sewing were shown. Price of machines $125 and upwards.

Gutta Percha Fabrics.

Gutta Percha is a peculiar gum resin, and has only been known in the arts for about ten years; it is only a few years since the method of preparing it, to render it capable of vulcanizing, was invented; this is also an American discovery—that of Rider and Murphy. The articles now manufactured of it are similar in appearance and nature to vulcanized india rubber. A variety of these are exhibited in the North-East Gallery. There are life-preservers, tents, coverlids, hats, coats, pants, drinking cups, valises, buckets, &c. They are all dark in color, and not so varied in their forms as vulcanized india rubber fabrics, but they will yet become more numerous.

Gold Separators and Crushers.

Edward N. Kent, of this city, exhibits his patent Gold Separator. The invention is in use, with much success at the U. S. Assay Establishment, Wall st, N Y For engraving and description see SCIENTIFIC AMERICAN, Vol. 11, page 81.

Bullock's Quartz Crusher Co., 208 Broadway, N. Y., exhibit in operation one of Bullock's patent Quartz Crushers. The invention is highly spoken of.

Thomas J. Chubb's patent Metal Separator, Williamsburgh, N. Y., is exhibited in operation. This is an ingenious machine. The separation is effected by specific gravity, the ore being first reduced to a dry powder or dust. A blast of air is made to pass through the dust, and causes a steady agitation. An endless chain of scrapers carries the dirt up an inclined plane, and out at one end of the machine, while the metallic particles, by their heavier gravity, gradually find their way down the incline into a receptacle.

Seed Planter.

Gould & Flanders, of Cambria, N. Y., exhibit a new seed planter, which is a very excellent and practical invention. The method of adjusting, of planting, in hills or drills, of regulating the depth at which the seeds are deposited, etc., is good. The frame is of iron, and the machine light but strong and substantial. Two or more rows can be planted at a time.

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W. G. C., of Pa.—Your proposed plan of treating slaty soil with lime, in the spring, and then with guano in the fall, appears to be correct, according to agricultural authors. Rich loamy soil is best for flax and hemp. It must be well pulverized. Sow two bushels to the acre in the spring, and pull before it is rank ripe, unless you wish to raise it for the seed. It is best to sow the flax in drills by a seed sower.

I. A. H., of Wis.—We do not know any material that is capable of preventing French green from fading when applied to blinds. Write to Alfred Speers, formerly of Passaic, N. J., now of this city, in relation to his weather strip for doors.

G. C., of Ill.—The views that have been presented on the Moon's rotation are very numerous; there is no use in presenting any diagram or plan on one side or the other, but that of a model which accurately exhibits the different motions of the earth and the moon.

W. L., of N. Y.—The same kind of marine governor as that presented by your sketch, has, on a former occasion, been submitted to us for examination.

J. T., of Iowa.—An extra dome on your boiler will be of some advantage in shedding the water; also a perforated plate at the mouth of your steam pipe, which should be made large. But the best plan would be to take your steam pipe through your smoke box, so as to partially superheat it.

C. B. C., of N. Y.—Your ten horse engine requires a boiler with a grate surface of 10 square feet, and a heating surface of 90 square feet, at least. You may make it of any form you choose, to embrace these conditions; we prefer the locomotive boiler, as being the most economical of fuel. A long cylindrical boiler, with return flues, would be the simplest and cheapest, and no doubt would answer your purpose. Be sure and get a strong boiler, and one that will raise sufficient steam without forcing it.

T. W., of Tenn.—Your suggestion in regard to a trimonthly is all very well, but it would be impossible for us to attend to it and do justice to our other business.

R. P. B., of N. Y.—We cannot answer your inquiry.

M. A., of N. J.—We will never advise an inventor to apply for a patent unless we think there is a good chance for his success. Agents cannot expect, however, to procure all the cases for which they make application. This would be impossible. If you employ us we will do the best we can for you. One thing you can depend upon, you will be fairly and openly dealt with, and what money you entrust to our care will be appropriated for the purposes for which it is paid. The fellows you refer to who hang about the corridors of the Patent Office are generally sharks, and leeches, with no professional merit, and no title to confidence; they are ready to open their unclean mouths against any one who may happen to fall in their way. If you kick a skunk you are likely to get the worst of it. You have now learned by sad experience that respectable patent agents are most reliable. They are usually at their offices instead of prowling about the Patent Office watching for customers.

H. T. W., of Mass.—Prussic acid is one of the most deadly poisons. It is composed of cyanogen and hydrogen. Cyanogen itself is very poisonous, hence great care should be exercised in using the cyanic compounds so common in electro-plating. Some assert that its action is like a paralytic shock, and that it will pass off and animation be restored by pouring a cold solution of the acetate of potash and salt on the head and spine of the person poisoned with it.

E. N. P., of S. C.—We do not wonder that you made sixteen drops of rain to fall perpendicularly into your gauge, and only twelve at an angle of 45 deg.; according to the diagram, fig. 3, you have made the spaces one-fourth greater between the angular lines.

R. M. of Philadelphia.—Paper machie is compressed in molds into any particular form required. India rubber is formed into hollow balls and other toys while in a plastic state. Metallic molds are used. A patent was granted to E. D. S. Goodyear in 1854, for partially filling india rubber balls with water, which is converted into steam during the vulcanization process, to preserve their form.

J. K. S., of Pa.—You cannot procure a very modern work upon millwrighting. Evans' work was published many years since, and is out of date to a great extent.

E. C. of Vt.—Several patents have been issued for newspaper feeding machines, but not one, to our knowledge, has succeeded. It would be useless for you to spend your time on such an invention without first understanding all the difficulties to be overcome. You must understand what has been done, and also the construction of Hoe's mammoth presses.

J. P. H., of Ohio—No Patent Report was published for the year 1836.

C. F. H., of Hopkinsville.—As we do not know in what State you reside, we could not write to you as you wished. The making of bath tubs of glass, instead of any other material, is not patentable. Any one would have a perfect right to make tubs of glass or any other substance

H. C. G., of Ill.—If you did not sign your name to the papers sent by you, we did not preserve them. You will see the difficulty of preserving papers unless we have the writer's name.

A. C. of Pa.—Your sewing machine improvement is not new. In Wilson's patent you will find the same device employed for catching the thread. You must therefore abandon it.

J. E. K., of Ark.—We do not understand the method of curing the defects of barometers, as set forth in your letter. You state that if the tube is air-tight, a perfect vacuum can be formed in it by driving out the air from the mercury by agitation. How can the air be driven out of the tube, if it is air-tight? You have no doubt overlooked something that you intended to say.

F. H., of N. H.—Melt some glass in a crucible, and place it in a mold with your hook for a core. The best plan you can pursue is to send your hooks to some glass works to be coated.

J. T. S., of Va.—The cheapest method of constructing telegraph lines is on elevated poles. If the wires were laid on the ground, they would require to be laid in glass tubes. Gutta percha and india rubber will melt when exposed to a high heat.

J. M. G., of N. Y.—We never heard of oyster shell being used in steam boilers to prevent and remove incrustations. Their composition is carbonic acid and lime. We cannot conceive how their action can be chemical, and if not they cannot be patented.

J. C. R., of Mich.—Not a particle of reliable evidence has yet been presented to prove there is a race of men with tails. The article you have sent us is an old story which has been floating about in several papers for a number of years.

H. H., of Va.—The stationary boiler with a fire-box and return flues is very good, but it is not new. It ought however, to be more generally employed.

H. H. C., of Pa.—We have written to the Office concerning the delay in your case, and as soon as we get a reply we will communicate with you by mail.

J. W., of N. Y.—If a magnetic needle be suspended in a hermetically sealed glass vessel, and a copper disk set in motion under it on the outside, motion will be communicated to the magnet. Glass is not a perfect non-conductor, as some seem to suppose. It is believed by some persons that gravitation and magnetism are one and the same influence. It is therefore supposed that the motion of the sun on his axis induces motion in the planets.

R. McC., of Va.—As you have too little water to run a wheel constantly throughout the year, we advise you to put up a steam engine.

J. W. W., of Pa.—W. A. Smith, of Elbridge, N. Y., and A. H. Turner, of Metheville, Onandago, Co., N. Y., put up the Parker wheel.

Money received at the SCIENTIFIC AMERICAN Office, on account of Patent Office business for the week ending Saturday, Oct. 25, 1856:—

E. G. H., of N. J., $30; S. S., of Ind., $25; E. B. & Bro., of Pa., $30; W. W., of O., $20; F. W., of Texas, $30; E. F., of Conn., $50; G. C., of N. Y., $30; S. L. H., of N. Y., $30; A. F. W., of Ky., $30; J. P., of Texas, $55; J. H., of Md., $25; A. B. W., of Conn., $30; H. P. T., of Mass., $25; T. H., of N. J., $30; L. Van H., of Conn., $30; J. S. B., of N. Y., $30; J. C. Jr., of Conn., $30; H. M., of O., $30; R. W. S., of Ala., $55; J. J. W., of N. J., $25; D. W., of N. J., $55; S. E. P., of Tenn., $20; J. E. S., of N. Y., $60; H. M., of N. Y., $32; P. B., of N. Y., $45; P. H., of N. Y., $35; O. H. N., of N. Y., $25; J. W. C., of L. I., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 25th:—

S. S., of Ind.; C. H. N., of N. Y.; A. F. W., of Ky.; S. R. H., of N. Y.; C. Van V., of Mich; W. W., of O.; G. S. B., of L. I.; H. P. T., of Mass.; J. W. C., of N. Y.; G. C., of N. Y.; J. E. S., of N. Y.; P. H., of N. Y.

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A WORD OF WARNING.—To those who have procrastinated in renewing their subscriptions, but still design to remit in a few days, we would say, be careful and not delay too long. The back numbers of the present volume are running low, and some of our friends are going to be disappointed, by and by, when they send in their subscriptions, and order the back numbers, by a short reply back, "Back numbers all gone."

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Rights to use the N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, Office for sale of rights at 27 State street, Boston, and Lowell, Mass, 45 6m*

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Science and Art.

Checked Perspiration.

There are two kinds of perspiration, *sensible* and *insensible*. When we see drops of water on the surface of the body as the result of exercise, or subsidence of fever, that is *sensible perspiration*, perspiration recognized by the sense of sight. But when perspiration is so gentle that it cannot be detected in the shape of water-drops, when no moisture can be felt, when it is known to us only by a certain softness of the skin, that is *insensible* perspiration, and is so gentle that it may be checked to a very considerable extent without special injury. But to use popular language which cannot be mistaken, when a man is sweating freely, and it is suddenly checked, and the sweat is not brought out again in a very few moments, sudden and painful sickness is a very certain result.

What, then, checks perspiration? A draft of air while we are at rest, after exercise, or getting the clothing wet and remaining at rest while it is so. Getting out of a warm bed and going to an open window or door, has been the death of multitudes.

A lady heard the cry of fire at midnight; it was bitter cold; it was so near, the flames illuminated her chamber. She left the bed, hoisted the window, the cold chilled her in a moment. From that hour until her death, a quarter of a century later, she never saw a well day.

A young lady went to her window in her night clothes to look at something in the street, leaning her unprotected arms on the stone window-sill, which was damp and cold. She became an invalid, and will remain so for life.

Sir Thomas Colby being in a profuse sweat one night, happened to remember that he had left the key of his wine cellar on the parlor table, and, fearing his servants might improve the inadvertence and drink some of his wine, he left his bed, walked down stairs, the sweating process was checked, from which he died in a few days, leaving six millions of dollars in English funds. His illness was so brief and violent that he had no opportunity to make his will, and his immense property was divided among five or six day-laborers who were his nearest relatives.

The great practical lesson which we wish to impress upon the mind of the reader is this: When you are perspiring freely, *keep in motion* until you get to a good fire, or to some place where you are perfectly sheltered from any draft of air whatever.

[The above is from *Hall's Journal of Health*, and we cannot but commend it to general attention. There are but few persons, we believe, who cannot recall some case within their own observation, of violent colds, consumption and premature death, caused by perspiration being suddenly checked. We have known many such cases ourselves. No one requires to be informed that checked perspiration is oftentimes the cause of disease; but there are so many who are liable to forget or overlook this fact, that it is good and necessary to give frequent warnings like the above.

Return of the Atlantic Surveying Expedition.

The U. S. steamer *Arctic*, which was sent out by the Secretary of the Navy, to survey the intended route across the Atlantic ocean between Newfoundland and Ireland, for the ocean telegraph cable, has arrived at this port, having sounded all the way across the bed of the ocean. The section traversed by the *Arctic* is a plateau. The bottom, in the deepest part, is a very fine mud, of a mouse-gray color, so soft that the sounding instruments would frequently sink several feet into it. Toward the shores on each side, this mud changes into a fine green ooze. No other substances were met with, no rock, nor anything that might prove fatal to a telegraph wire. The whole distance across was found to be 1,640 sea miles, from St. Johns, Newfoundland, to Valentia Harbor, Ireland. The greatest depth was found nearly in the center between these two places, namely, 2 miles, 186 feet.

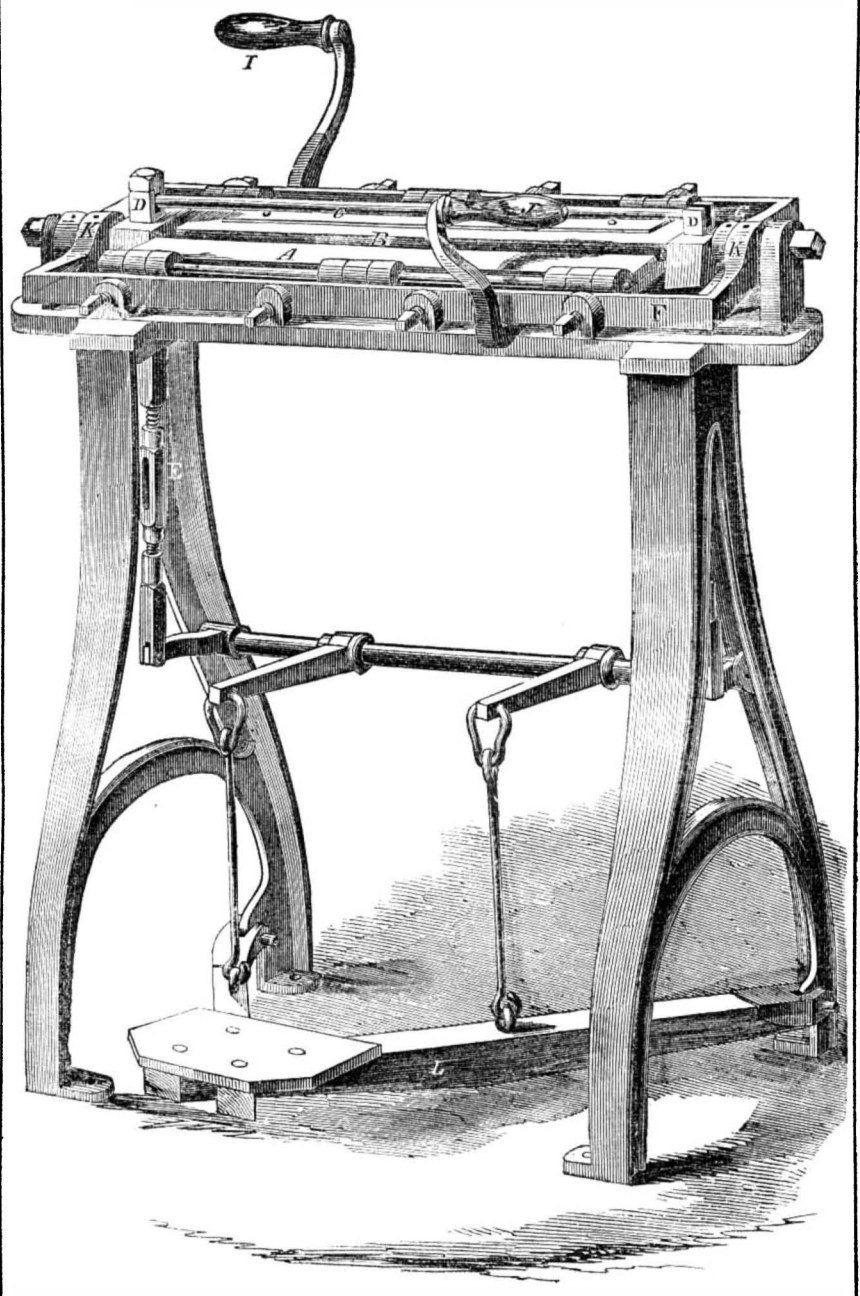
The survey was accomplished without much difficulty, and the conclusion deduced is, that the bed of the ocean for the submarine telegraphic cable is exceedingly favorable.

Experiments with Bessemer's Process.

The Liverpool (Eng.) *Morning Herald* states that some experiments have recently been made at the Mersey Steel and Iron Works, in that city, to test the merits of Bessemer's process.

At the Monthly Meeting of the Liverpool Polytechnic Society, the Chairman, Edward Jones, Esq., said that a specimen of Bessemer's iron had been received and tested by Mr. Clay, in the presence of Mr. Dawson and himself, and, he regretted to say, it had been far from satisfactory. The specimen submitted had all the appearance of burned and imperfect cast-iron. He might say it was rotten hot and rotten cold. Mr. Dawson corroborated this statement, and also said that he had been much disappointed in the result; the portion submitted to the rolling machine had proved every way intractable. The Chairman added that he hoped ere long better results of this process would be manifested; but, in the one to which he referred, he was informed that the iron cost £6 per tun originally, and after being operated on as he saw it, he did not consider it worth £4 per tun.

MACHINE FOR MAKING TUBES.



New Tube Former.

The Stowe Manufacturing Co., of Plantsville, Conn., exhibit at the great Fair of the American Institute, Crystal Palace, one of their tube-forming machines, from which our cut is taken. In this machine tubes are formed by first bringing the blank into the shape of the letter U, and by means of hinged folders completing the tube.

C represents the rod around which the tubes are formed; it is hinged to the guide, D, on the right of the machine—and attached to the guide, D, on the left, in such a manner as to be freely liberated, to slip the tube off the rod. This rod is forced into the concave bed, B, by applying the foot to the lever, L. F is a folding wing turning on pins passing through its ends at K K. A is a hinged plate fastened to F in such a manner as to be easily adjusted to rods of any size, whether taper or straight.

The folding wing, with its hinged plate, is turned on its axis over the rod by the crank, J. This axis must be in a line longitudinally with the centers of the die rod, when that rod is forced into its bed. The edge of the plate, A, is made to press on the rod to form the upper parts of the tube, by turning said plate with the folding wing, F, over the rod. This pressure is removed on the return of the folding wing, F, by means of the hinge by which A is connected to F.

On the other side of the rod there is a folding wing, G, similar to F, and similarly operated by the crank, I. This folding wing, G, bears a gauge against which the blank is placed under the die rod. These machines can be fitted with different die rods and beds to form any desired blank.

To form a tube the blank is placed under the die rod, C; the rod is then forced into its bed by means of the foot lever, L; the folding wing, G, is then moved over the rod, after which the folding wing F is moved in the like manner, and the tube is formed.

The inventor states that with this machine from 6 to 8,000 feet of speaking tubes can be formed in a day, that eight gross of rattle-box handles have been made in an hour.

Six series are made capable of forming tubes two feet long, down to lamp tubes. For further information address the Stowe Manufacturing Co., Plantsville, Conn.

American and English Agricultural Implements.

At a dinner recently given at Aylsford, Kent Co., Eng., to celebrate the return of Mr. Betts, the celebrated railroad contractor, from a tour in the United States and Canadas, he stated that our people in America were behind the people in England in agricultural implements, excepting mowing machines, in which we excelled, and one of which he had brought with him, and which, drawn by two horses, had cut eleven acres per day. He stated that America was a magnificent country, one far better for the poor man, but possessing far less comforts and privileges than England for those who possessed capital.

We think Mr. Betts did not travel altogether with his eyes open in our country. There are just as many comforts and conveniences for those who have capital in this country as there are in England; of course, this is not the case in the newly settled parts of our country; this cannot be expected but in the older states and in our cities. And even in our new States, enterprise is so active that in a very few years after any place is settled it attracts most of the refinements and luxuries of life to it. We know that his opinions respecting American agricultural implements are wrong. Our hay forks, axes, cultivators, planters, scythes, rakers, hoes, and even our plows, yes, most of our agricultural implements are now superior to those made and used in England. A most creditable and marked improvement has been made during the past few years in all our agricultural tools and implements. It is true that there are too many poor implements manufactured so as to be sold cheap, but this is the case in every country; we do not refer to these, but to those of the best quality, which can be obtained of every respectable dealer. We are of opinion, judging from what we have seen ourselves, that American Agricultural Implements, as a whole, are the best in the world.

MECHANICS

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TWELFTH YEAR

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